

UNITED STATES DEPARTMENT OF THE INTERIOR

REVISED

DRAFT ENVIRONMENTAL STATEMENT
PRELIMINARY WILDERNESS PROPOSAL

DES 79-12

LAKE MEAD NATIONAL RECREATION AREA
ARIZONA AND NEVADA

Prepared by the
Denver Service Center
National Park Service
Department of the Interior


Regional Director, Western Region

SUMMARY

(X) Draft () Final Environmental Statement

**Department of the Interior, National Park Service,
Western Region, San Francisco, California**

1. Type of Action: () Administrative (X) Legislative

2. Brief Description of Action:

To designate as wilderness 25 units totaling 418,655 acres within Lake Mead National Recreation Area in Clark County, Nevada and Mohave County, Arizona. In addition, 262,125 acres are proposed as potential wilderness additions to be added to the wilderness system at such time as the lands so qualify under the Wilderness Act of 1964.

3. Summary of Environmental Impact and Adverse Environmental Effects :

Wilderness designation will restrict management prerogatives and will limit development of recreation and reclamation facilities to non-wilderness areas of the recreation area. The action will provide increased protection from encroachment by man, and will have no major adverse effect upon the natural, archeological, or historic resources of the area. Wilderness designation will prohibit reclamation projects, leases for oil, gas, and minerals on wilderness lands resulting in a potential, but unknown and unproven social and economic loss.

4. Alternatives Considered:

- A. No Action**
- B. Less-Wilderness Designation**
- C. Additional Special Provisions**

5. Comments Have Been Requested from the Following:

(see page iii for listing)

6. Date Made Available to EPA and to the Public:

**Draft Statement: March 16, 1979
Final Statement:**

Federal Agencies

Advisory Council on Historic Preservation
Department of Agriculture
 Forest Service
 Soil Conservation Service
Department of Defense
 Army Corps of Engineers
Department of the Interior
 Bureau of Indian Affairs
 Bureau of Land Management
 Bureau of Mines
 Bureau of Reclamation
 Fish and Wildlife Service
 Geological Survey
 Heritage Conservation and Recreation Service
 Office of Surface Mining
Department of Transportation
 Coast Guard
 Federal Aviation Administration
Environmental Protection Agency
Federal Power Commission

State Agencies

Arizona State Clearinghouse
 Arizona State Historic Preservation Officer
Nevada State Clearinghouse
 Nevada State Historic Preservation Officer
Utah State Historic Preservation Officer

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	
I. DESCRIPTION OF THE PROPOSAL	I-1
A. PRELIMINARY WILDERNESS PROPOSAL	I-1
1. The Wilderness Study	I-1
2. Wilderness Designation	I-5
B. WILDERNESS UNITS	I-6
1. Unit 1 - Christmas Tree Pass	I-6
2. Unit 2 - Nellis Wash	I-6
3. Unit 3 - Black Mountains	I-7
4. Unit 4 - Opal Mountain	i-7
5. Unit 5 - Eldorado Mountain	I-7
6. Unit 6 - River Mountains	I-7
7. Unit 7 - Kingman Wash	I-8
8. Unit 8 - White Hills, Unit 9 - Temple Bar, and Unit 10 - Greggs Hideout	I-8
9.. Unit 11 - Cathedral Wash	I-9
10. Unit 12 - Overton	I-9
11. Units 13 through 22	I-9
12. Unit 23 - Andrus Point, Unit 24 - Whitmore Point, and Unit 25 - Lava	I-10
C. POTENTIAL WILDERNESS ADDITIONS	I-10
1. Potential Sites for Bureau of Reclamation Developments	I-10
2. Unit B - Cottonwood Valley	I-11
3. Unit L - Shivwits Plateau	I-11
4. State, County, and Private Lands	I-12
5. Mineral Leases	I-12
D. NON-WILDERNESS AREAS	I-12
E. SPECIAL PROVISIONS	I-13
1. Watering Devices	I-13
2. Reclamation	I-13
3. Mineral Leasing	I-14
F. INTERRELATIONSHIPS WITH OTHER PLANS AND PROPOSALS	I-15
1. Grand Canyon Adjacent Lands Study	I-15
2. Grand Canyon Wilderness Recommendation	I-15
3. Lake Mead Boundary Revisions	I-19
4. Lake Mead Natural Resources Management Plan	I-19
5. Bureau of Land Management - Wilderness Studies	I-19

II.	DESCRIPTION OF THE ENVIRONMENT	I I-I
A.	LAKE MEAD NATIONAL RECREATION AREA	II-1
1.	Purpose	II-1
2.	Access and Regional Setting	II-2
3.	Land Classification	II-2
4.	Land Use	II-4
a.	Reclamation	II-4
b.	Recreation	II-6
c.	Grazing	II-8
d.	Mining	II-10
B.	CULTURAL RESOURCES	II-11
1.	Archeological	II-11
2.	Historic	II-14
C.	NATURAL RESOURCES	II-17
1.	Climate	II-17
2.	Basin and Range Province	II-18
a.	Geology	II-18
b.	Biotic Communities	II-20
3.	Colorado Plateau Province	II-27
a.	Geology	II-27
b.	Biotic Communities	II-27
4.	Endangered or Threatened Species	II-29
5.	Environmental Quality	II-30
a.	Air Quality	II-30
b.	Water Quality	II-31
c.	Noise	II-32
6.	Probable Future Environment Without the Proposal	II-31
III.	ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION	III-1
A.	ENVIRONMENTAL IMPACTS ON EXISTING LAND USE	III-1
1.	Mining	III-1
2.	Grazing	III-2
3.	Reclamation	III-2
4.	Recreation	III-3
B.	IMPACTS ON NATURAL RESOURCES	III-5
C.	IMPACTS ON CULTURAL RESOURCES	III-7
D.	IMPACTS ON SOCIOECONOMIC FACTORS	III-8
E.	IMPACTS ON WILDERNESS VALUES	III-9
IV.	MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION	IV-1
V.	ANY ADVERSE EFFECTS THAT CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED	V-1
VI.	THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	VI-1

VII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED	VII-1
VIII. ALTERNATIVES TO THE PROPOSED ACTION	VIII-1
A. NO ACTION	VIII-1
B. LESS WILDERNESS DESIGNATION	VIII-2
1. River Mountains	VIII-4
2. Overton Unit	VIII-5
C. ADDITIONAL SPECIAL PROVISIONS	VIII-5
1. Cultural Resource Management	VIII-5
2. Reclamation Withdrawals	VIII-6
3. Mining	VIII-7
IX. CONSULTATION AND COORDINATION WITH OTHERS	IX-1
A. CONSULTATION AND COORDINATION IN THE DEVELOPMENT OF THE PROPOSAL AND IN THE PREPARATION OF THE DRAFT ENVIRONMENTAL STATEMENT	IX-1
1. Consultation with the Public	IX-1
a. Field Trips for Consultation with Local Ranches	IX-1
b. Wilderness Pre-Planning Workshops	IX-2
2. Coordination with Other Agencies	IX-8
a. Bureau of Reclamation	IX-8
b. Bureau of Land Management	IX-8
Southern Nevada Water System	IX-9
B. COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT	IX-9

MAPS

WILDERNESS PLAN, LAKE MEAD NATIONAL RECREATION AREA	I-3
RECLAMATION WITHDRAWN LAND	II-5
GRAZING ALLOTMENTS	II-9

APPENDIXES

A. U.S. BUREAU OF RECLAMATION STUDY	A-1
B. THE WILDERNESS ACT OF 1964	B-1
C. WILDERNESS PRESERVATION AND MANAGEMENT POLICIES OF THE NATIONAL PARK SERVICE	C-1
D. FIELD SOLICITOR'S MEMORANDUM - WILDERNESS DESIGNATION ON RECLAMATION WITHDRAWALS	D-1
E. RESULTS OF THE PUBLIC HEARINGS AND WRITTEN RESPONSES TO THE PRELIMINARY WILDERNESS STUDY, NOVEMBER 1973	E-1
F. WILDERNESS TEAM PERSONNEL	F-1

I. DESCRIPTION OF THE PROPOSAL

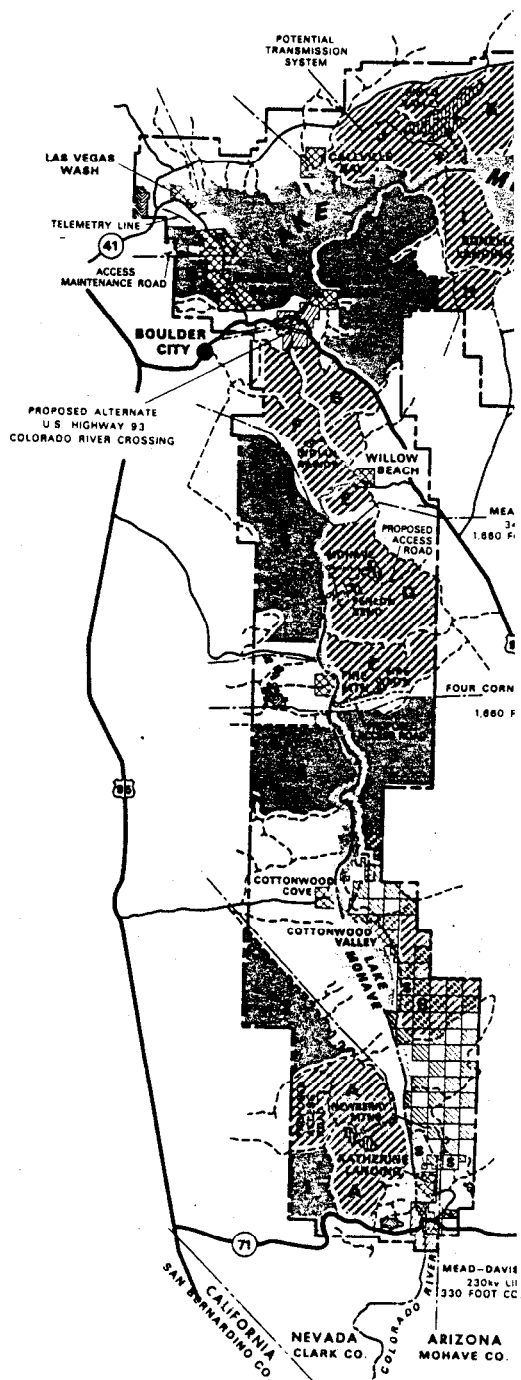
A. PRELIMINARY WILDERNESS PROPOSAL

Twenty-five units totaling 418,655 acres are being proposed for wilderness designation (as shown on the following map) in the Lake Mead National Recreation Area. These units comprise about 28 percent of the area's total acreage. The preliminary proposal also includes potential wilderness additions totaling 262,125 acres which will be designated wilderness when the current non-qualifying conditions no longer exist, and the area otherwise qualifies as wilderness. The total wilderness and potential wilderness additions is 680,780 acres or about 45 percent of the national recreation area.

<u>Summary</u>					
Unit	<u>Wilderness</u>	<u>Potential Wilderness Addition</u>	Unit	<u>Wilderness</u>	<u>Potential Wilderness Addition</u>
1	7,650		19	12,100	
2	15,870		20	13,895	
3	17,970	640	21	7,720	
4	17,635		22	14,020	
5	29,665		23	14,290	615
6	6,975		24	32,215	
7	35,530		25	10,710	600
8	25,580		A		32,955
9	16,665		B		15,295
10	9,885	80	C		15,145
11	15,220		D		25,605
12	24,040		E		2,045
13	10,610		F		14,645
14	22,095		G		13,030
15	14,620		H		5,305
16	8,545		I		13,875
17	15,370		J		23,765
18	19,780		K		14,545
			L		83,980
Total				418,655	262,125

I. The Wilderness Study

During 1973 and 1974, the National Park Service conducted a wilderness study within Lake Mead National Recreation Area pursuant



to the Wilderness Act of 1964 (P. L. 88-577). A wilderness recommendation and draft environmental impact statement (DES 74-3) evolved from this study and public participation. However, the entire recreation area is subject to withdrawals for power purposes, and in view of the potential energy needs of the West the President's message to the Congress on December 4, 1974 recommended that further studies be made and recommendations be submitted within three years.

The Bureau of Reclamation immediately began first-phase studies to determine the reclamation potentials within the recreation area. These first-phase studies have been completed and a report submitted to the National Park Service in January 1977. This report, as modified by the Bureau through September 1977, forms Appendix A of this environmental statement. These reclamation factors have been given consideration in the formulation of the proposed wilderness units of the present recommendation, and affect the wilderness suitability of roadless areas within the recreation area more than any other factor.

Congress passed the Grand Canyon Enlargement Act (P. L. 93-620) in January 1975. This Act transferred the Sanup Plateau, 93 miles of the Colorado River, and portions of the Grand Wash Cliffs from the recreation area to Grand Canyon National Park. This action reduced the gross acreage of Lake Mead National Recreation Area to 1,496,600 acres. Road less areas deleted from the recreation area have been analyzed for wilderness potential in the proposed wilderness classification for Grand Canyon National Park (DES 76-28).

2. Wilderness Designation

The roadless study area delineated the boundaries of the land areas to be considered for wilderness designation within the recreation area. The character of each unit was evaluated by the definition of wilderness as is specified in Section 2.(c) of the Wilderness Act (P. L. 88-577; see Appendix B), and Wilderness Preservation and Management Policies of the National Park Service (see Appendix C).

Certain specific uses are permitted by legislation in the recreation area which are not permitted within natural area units of the National Park System. These uses, and the conditions they create, were carefully considered in the process of determining wilderness suitability, and in certain instances caused the exclusion of otherwise suitable areas from wilderness recommendation. Examples of areas not recommended for wilderness because of specific uses are existing patented claims and existing mining leases, existing developed areas and areas identified for future recreational development, the reservoir surface with its use by motorized boats, road access corridors for grazing support, administrative needs or general recreational purposes, and Bureau of Reclamation development sites based on existing legislation.

Use of the wilderness areas is predicated on the interrelationship with the other recreational activities for which the recreation area was created. Access road systems, recreational developments, motorized craft on the reservoir, and other general recreational use complement use of adjacent primitive areas as wilderness, as the concept is applied in a national recreation area, and were instrumental in determining the size of each proposed wilderness unit.

B. WILDERNESS UNITS

The units proposed as wilderness include most of the lands in the recreation area which possess primitive characteristics. Lands proposed for wilderness whose pristine qualities have been marred by man's past activities will be returned to a more natural state and appearance by an active program of land restoration. The remaining lands and waters will continue to be managed and utilized for recreation, reclamation and power projects, grazing, and other purposes consistent with the act of October 8, 1964 (P. L. 88-639), which established Lake Mead National Recreation Area.

The wilderness boundary lines of the units follow topographic features, access roads, the recreation area boundary line, section lines, and a line marking a 300-foot horizontal setback from the high-water lines of Lake Mohave and Lake Mead.

I. Unit 1 - Christmas Tree Pass

This unit consists of 7,650 acres, and is in the extreme southwest corner of the recreation area. It is bordered on the north and east by the Grapevine Canyon Road and Highway 71, and on the west and south by the boundary of the recreation area. The area centers on the Newberry Mountains, which rise to an elevation of 5,600 feet and offer a cool refuge from the heat of the surrounding desert lowlands. Davis Dam, the Mohave Power Plant, Katherine Landing, and Bullhead City are developments visible from the southern and eastern portions of this unit.

2. Unit 2 - Nellis Wash

This 15,870-acre unit includes portions of the isolated Newberry Mountains along the western side of the recreation area. Finger-like drainages and alluvial fans extend eastward from the mountains toward Lake Mohave. Some mining has occurred within the unit, as is the case in most areas of the recreation area. However, it is not obtrusive and in effect adds an historic element that is characteristic of the old West. No active mining occurs within the unit. A powerline corridor and access road form a boundary to the north and east. The Empire Wash access road bounds the unit on the south, and the recreation area boundary forms its western edge.

3. Unit 3 - Black Mountains

The Black Mountains, capped by 2,000-foot Mount Davis, provide the background to users of Lake Mohave. Approximately 17,970 acres are included within this proposed wilderness unit. Scattered washes and side canyons transect the Black Mountains from east to west as they wend their way to the Colorado River. The Four Corners-Eldorado Transmission Line forms the north boundary, the west boundary is 300 feet from the high-water line of Lake Mohave, the south boundary follows a series of roads of the Cottonwood Valley system, and the east boundary is the recreation area boundary line.

4. Unit 4 - Opal Mountain

Within this proposed wilderness is a portion of the Eldorado Mountains, gently rolling hills and outwashes extending to Lake Mohave. Rugged mountains, secluded valleys, and flat alluvial fans provide opportunities for seclusion and isolation in a setting of scenic splendor. The unit is bounded on the north by the Aztec Powerline road, on the east by a 300-foot setback from Lake Mohave, on the south by the Opal Mountain Road, and on the west by the recreation area boundary. Approximately 17,635 acres are included within this unit.

5. Unit 5 - Eldorado Mountain

Contained within this 29,665-acre unit are the picturesque and rugged Eldorado Mountains. The unit is a maze of peaks and side canyons with vertical cliffs extending to the edge of the Colorado River. State Highway 60 forms the southern boundary; the Colorado River/Lake Mohave 300-foot setback constitutes the east boundary, the northeast side is bounded by the Mead-Liberty Transmission Line, and the recreation area boundary forms the west unit boundary.

6. Unit 6 - River Mountains

This 6,975-acre wilderness unit is dominated by the rugged irregular River Mountains. Harbored within this range is a herd of approximately 250 desert bighorn that utilize the excellent habitat provided by this natural refuge and nearby man-created water sources. The range is surrounded by urban environments and heavy recreational pressures associated with use of the Boulder Basin.

The topography of the River Mountains is diverse, ranging from low rolling hills, to extremely rugged terrain. Elevations range from 1,260 feet at Boulder Beach on the eastern side to 3,789 feet at the crest of the mountains. A ridge of peaks, extending 3 miles from

the center of the range south to Black Mountain, constitutes the highest part of the River Mountains. Eastward from this ridge, the topography is heavily cut by major drainages and resulting steep canyons. The remainder of the range, though rough in isolated areas, is low rolling country, washes, and alluvial fans.

This unit includes part of the Southern Nevada Water Project (SNWP) including the River Mountains Tunnel, which carries water from Lake Mead to municipal and industrial users. On the surface above the tunnel there is a primitive road used on an irregular basis for maintenance and to serve survey needs in connection with future project work. SNWP construction is now underway, and involves adding pumps and pipelines to both ends of the existing tunnel. There is the possibility that a second tunnel might have to be bored if water from other sources is diverted to Lake Mead.

The National Park Service recognizes the necessity to maintain, and repair damage to, the existing tunnel and the potential for expansion of the tunnel facility, but finds the surface lands to be in a primitive condition and containing significant wilderness values. The only evidence of man's work which will be found within this unit a primitive four-wheel-drive access route used on an irregular basis for maintenance and to perform survey work as needed for the reclamation projects. The National Park Service proposes that this irregular and infrequent use on the surface be allowed to continue, and that it is not significant enough, or of such magnitude, to disqualify any portion of this unit from wilderness designation.

7. Unit 7 - Kingman Wash

Approximately 35,530 acres are included within this unit. It is bordered on the north by the 300-foot horizontal setback from the high-water line of Lake Mead; on the west by the Kingman Wash development and access road; on the south by U.S. 93; and on the east by access roads. An area used for intensive recreation and an area which may be needed as a powerline corridor are identified as non-wilderness along the east boundary. The undulating Black Mountains typify the topography of the region. Access to the unit is provided on all sides by existing road corridors.

8. Unit 8 - White Hills, Unit 9 - Temple Bar, and Unit 10 - Gregg's Hideout

These proposed wilderness units are located within the White Hills. This rolling hill country includes some evidence of earlier historic mining activities and trails associated with these efforts. The early methods of mining did not scar the area excessively and many scars have healed to the point of not being noticeable. However, areas further to the west are not proposed as wilderness because they

have been severely scarred by modern exploration techniques and road construction. Isolation, seclusion, scenic views and historic significance characterize the proposed wilderness. Unit boundaries consist of access roads, setbacks from Lake Mead, development areas and recreation area property lines. Access to the area is possible from existing roads, hiking from developed areas such as Temple Bar, or by boat from Lake Mead. These three units contain a total of approximately 52,130 acres.

9. Unit -I Cathedral Wash

This 15,220-acre unit is bounded on the north by the Echo Wash access road; on the east, by the 300-foot setback from the high-water line of Lake Mead; on the south, by an access road; and on the west, by State Highway 41A and the Boathouse Cove access road. Mountainous terrain representing the northeast extremities of the Black Mountains dominates the area and contrasts directly with the flat surface of Lake Mead.

10. Unit 12 - Overton

Most of this 24,040-acre unit consists of flat to "badland-like" lands sloping westward from mountainous terrain to a road corridor east of the recreation area boundary. The unit forms the scenic background for lake users, and for shoreline users on the west side of Overton Arm. These flat outwashes lack the spectacular contrasts found within other units. This unit has a typical desert landscape. It has retained its primitive condition, and affords an opportunity for seclusion and an unconfined type of recreation. On the north, the unit is bordered by the Narrows South access road; on the east, by the recreation area boundary; on the south, by the Catclaw access road, and on the west, by the 300-foot setback from Lake Mead.

II. Units 13 through 22

These units are known as Twin Springs, Scanlon Wash, Hiller Mountains, Hell's Kitchen, Indian Hills, Cockscornb, Grand Wash Cliffs, Iceberg Ridge, South Cove, and Pierce Ferry. The units contain rugged mountain ranges which provide a scenic background for the Virgin Basin section of Lake Mead. Gently sloping outwash fans extend from the mountain fronts to plunge abruptly into the reservoir .

The units are bounded by a network of roads that provide access to developed areas or the lakeshore, by recreation area boundaries, and the lakeshore setback. The interior portions of these wilderness units are readily accessible from adjacent roads. Units 13 through 22 contain a total of approximately 138,755 acres.

12. Unit 23 - Andrus Point, Unit 24 - Whitmore Point, and Unit 25 - Lava

These three proposed wilderness units consist of approximately 58,430 acres in the northesst sector of the recreation area. Contained within these units are Parashant, Andrus, and Whitmore Canyons; all are precipitous side canyons of significant grandeur that drain into the Grand Canyon. The entire area is undeveloped land retaining its primeval character with the imprint of man's work substantially unnoticeable and provides an opportunity for solitude or a primitive and unconfined type of recreation in a scenic setting of steep escarpments, colorful redwalls, and deep canyons.

Geologic formations and processes in evidence here may provide information on the origin of the Grand Canyon, which is of interest to the scientific and educational communities. Also of interest to these communities are the archeological sites of several Indian cultures, including the Virgin Anasazi and more recently the Paiutes.

Grazing has occurred in this region for over a hundred years and the Lake Mead establishing act identifies grazing as an acceptable use. Roads and tanks or water pockets found to be needed for current grazing operations and requiring road access are excluded from the wilderness proposal. All of the roads in this area and on the Shivwits Plateau serve dual roles providing access for recreation and for grazing support purposes.

Wilderness unit boundaries consist of road systems, recreation area boundaries, and plateau rims. Adjacent primitive areas of Grand Canyon National Park were considered while deriving this wilderness proposal for Lake Mead. The areas are contiguous and provide for a contiguous unit of primitive lands extending westward from the Pine Mountains across the Sanup and Shivwits Plateaus to the Grand Wash Cliffs.

C. POTENTIAL WILDERNESS ADDITIONS

I. Potential Sites for Bureau of Reclamation Developments

Eleven areas, identified by letters A and C-K on the preliminary wilderness plan, are proposed as potential wilderness additions. The Bureau of Reclamation has identified these areas as potential locations for reclamation facilities ranging from modification of Hoover Dam to new transmission line corridors (see Appendix A). Each of these potential facilities could require a considerably larger area for construction activities than the principal construction owing to required site for access roads, transmission and utility lines, and borrow pits. The Bureau of Reclamation plans to make the

final selection of sites for development by 1983. It is recommended that those areas which are not selected for construction of reclamation facilities will become wilderness. In the interim, these areas will be managed as potential wilderness to retain their natural condition and to provide opportunities for solitude and an unconfined type of recreation.

2. Unit B - Cottonwood Valley

Cottonwood Valley was not previously considered for wilderness because of outstanding mineral reservations. However, this outwash trending to the west provides solitude and isolation in a primitive setting just to the north of a major development at Katherine Landing. It is the intent of the National Park Service to purchase the outstanding rights. Until that time it is proposed as a potential wilderness addition. This 15,295-acre unit is bounded on the north, south, and west by existing access roads and on the east by the recreation area boundary. The terrain slopes gently westward toward Lake Mohave.

3. Unit L - Shivwits Plateau

Approximately 83,980 acres are included within this unit. A diversity of activities occur in this remote section of Lake Mead ranging from hunting to grazing. Due to a higher altitude, the region is cooler, has more precipitation, and supports pinyon-juniper and ponderosa pine forests. Therefore, it also contains a wider variety of wildlife, including the highest number of mule deer to be found in the recreation area. Big game hunting is a favorite recreational pursuit and probably accounts for the majority of visitation to this area. The cooler, wetter climate also provides for some of the better grasslands which sustain larger numbers of cattle per unit of area than other sections of the recreation area. Additional recreational activities include nature study, dry camping with a vehicle, rockhounding, exploring with four-wheel-drive vehicles, and hiking the superlative rim country. Kelly Point, Twin Point, and other points along the rim permit spectacular views of the Grand Canyon.

There are 66,350 acres of land within this unit which are subject to mineral reservations and surface repurchase rights held by Santa Fe Industries. The National Park Service intends to acquire these rights in the near future. It is proposed that this area be designated as a potential wilderness addition until the purchase of outstanding rights is consummated.

Wilderness unit boundaries follow rims, internal access roads, and recreation area boundaries. Adequate access is provided for hunting, four-wheel-drive exploring, scenic overlooks, etc. The proposal does not close any roads on the Shivwits and, in certain

instances recommends that additional existing roads be added to the approved roads plan as outlined in the Natural Resources Management Plan for the recreation area to meet both recreation needs and grazing requirements. Several of the units may appear to be narrow and splintered by access roads. However, when considered along with the adjacent proposed wilderness in Grand Canyon, it is apparent that these would form a significant contiguous wilderness unit.

4. State, County, and Private Lands

Within areas proposed for potential wilderness designation there are 2,095 acres of state, county, and private land. It is the intent of the NPS to acquire these lands at a determinable time in the future.

5. Mineral Leases

The Knight uranium lease covers 640 acres (less a road corridor) in Unit 23. A denial of lease renewal is now under appeal. Until a final decision is rendered, this tract is recommended for potential wilderness addition designation. If the lease renewal denial is upheld, it will become wilderness. If it is determined that the lease is valid, a renewal is granted, and development takes place, the land would not retain its present primitive condition and would not be recommended for wilderness.

D. NON-WILDERNESS AREAS

The wilderness proposal will not close the recreation area to current uses, rather, it responds to legislated requirements for recreation, reclamation, grazing, mining, and hunting. It is intended to complement the purposes for which the area was created. A total of 816,920 acres, or 55 percent of the recreation area, is proposed to remain in a non-wilderness status.

Existing private recreational developments and existing National Park Service developments necessary for supporting recreational activities are not recommended for wilderness. Additional land area is also excluded to provide for development that may be necessary to meet future recreational needs. All existing mineral leases are excluded from wilderness recommendation. There are currently four such leases totaling 2,880 acres which are outstanding, and one lease of 400 acres which is under appeal for approval.

None of the water surface of the Colorado River or of lakes Mead and Mohave are recommended for wilderness. Nearly all of the water surface is used by boats with motors which is an established and non-acceptable wilderness use. A 300-foot horizontal setback from the high-water line for lakes Mead and Mohave has also been

excluded from wilderness to provide for Reclamation and recreation activities along the shoreline.

Access to all portions of the recreation area is essential to provide for grazing, hunting, general recreational use, and potential needs of the future, as well as for administrative, maintenance, and operational requirements. These road corridors are not being proposed for wilderness status and, in certain instances, additional road corridors were left out of wilderness to assure for the continuation of existing uses consistent with the enabling legislation.

The enabling legislation (P. L. 88-639) for the recreation area states, "The inclusion of Indian lands within the exterior boundaries of the area should not be effective until approved by the Hualapai Tribal Council" (Sec. 3. (a)). Thus the 224,420 acres of Hualapai lands within the recreation area cannot be studied or recommended for wilderness without this approval as they are not under National Park Service administration. It is also highly unlikely that any Hualapai Tribal Council will ever approve relinquishing these lands.

There are 11,900 acres of private land and 2,725 acres of county and state lands within Lake Mead National Recreation Area. Acquisition of these lands is actively being pursued with the objective of eventual federal ownership of all lands within the recreation area boundary. Non-federally owned lands cannot be proposed for wilderness.

Remaining lands excluded from the wilderness proposal are presently used for recreational purposes which are incompatible with wilderness. Many of these areas are crisscrossed by a maze of roads providing access to the lakes or used by four-wheel-drive enthusiasts. Other excluded areas include lands which will continue to be managed for reclamation purposes and other uses consistent with the act establishing the recreation area.

E. SPECIAL PROVISIONS

1. Watering Devices

It is recommended that the Congressional Committee reports on the legislation recognize placing wildlife-watering devices within the proposed wilderness as a need which is compatible with wilderness.

2. Reclamation

Congressional designation of lands as wilderness is a long-term, best-use determination to give those lands the protection provided under the Wilderness Act of 1964. Consequently, the National Park

Service can not recommend lands for wilderness if they are subject to future uses which would jeopardize their wilderness character or potentially be a cause for revocation of their wilderness status.

Reclamation projects are, by their very nature, land use activities which substantially lay the imprint of man upon the landscape. Therefore, no lands which are subject to the potential of future reclamation activities can be recommended for wilderness status unless such reclamation withdrawals and reservations are revoked (see Appendix D). Withdrawals for reclamation purposes encumber approximately 96,200 acres of land being recommended for wilderness in this proposal.

The preliminary wilderness proposal presented herein, has been prepared following a 3-year study by the Bureau of Reclamation for the purpose of identifying potential power sites within Lake Mead National Recreation Area. While the areas proposed for wilderness designation do not include lands identified by this study for possible future use for reclamation facilities, it is recognized that future events could indicate needs for additional facilities which are not foreseen or anticipated at this time. Such future need was recognized by the Act which established the Lake Mead National Recreation Area (P. L. 88-639) as follows:

"Establishment or revision of the boundaries of the said national recreation area . . . shall not . . . affect the validity of withdrawals heretofore made for reclamation or power purposes. All lands in the recreation area which have been withdrawn or acquired by the United States for reclamation purposes shall remain subject to the primary use thereof for reclamation and power purposes so long as they are withdrawn or needed for such purposes."

Since wilderness is an area which is to remain undeveloped, the National Park Service proposes to recommend that legislation designating wilderness at Lake Mead state that within the Lake Mead wilderness the primary purpose shall be its preservation for use and enjoyment as wilderness until such time as other uses are permitted by subsequent legislative action as provided for in Section 3(e) of the Wilderness Act, P. L. 88-577.

The National Park Service also recommends that the Congressional Committee reports on the legislation recognize the need for the continued use, maintenance and future modification of the tunnel system within any designated wilderness in the vicinity of the River Mountains on the west side of Lake Mead.

3. Mineral Leasing

By passage of the enabling act for Lake Mead National Recreation Area (P. L. 88-639), Congress authorized mineral leasing within the

recreation area (Section 4.6.3) at the discretion of the Secretary of the Interior, subject to such limitations, conditions, or regulations as the Secretary may prescribe. This authority would not be abrogated on lands designated as wilderness within the recreation area by Congress.

By their very nature, the works and activities of man in a mineral extraction activity are in direct conflict with wilderness values. It is difficult to visualize the Secretarial limitations, conditions, or regulations which could serve to protect wilderness and natural values and still remain reasonable and not unduly restrictive on mining or petroleum development. With this ambiguity in mind, it is doubtful if the Secretary would grant mineral or oil and gas leases, involving surface occupancy and facility development, on Congressionally designated wilderness lands. Congress, however, can remove this ambiguity in the wilderness legislation by specifically stating that the primary purpose of the designated wilderness is its preservation for use and enjoyment as wilderness.

F. INTERRELATIONSHIPS, WITH OTHER PLANS AND PROPOSALS

I. Grand Canyon Adjacent Lands Study

Grand Canyon National Park was expanded by the Grand Canyon National Park Enlargement Act passed January 3, 1975 (P.L. 93-620) (16 U.S.C. s 228a et seq.) in order to consolidate most of the geographic areas known as the Grand Canyon. Recognizing the potential park value of other adjacent areas, including the tributary canyons of Parashant, Andrus, Whitmore, and Kanab Canyons as well as the Shivwits Plateau, the House Committee of Conference directed the Secretary of the Interior to study these areas to determine if they, or any part of them, qualify for national park designation. This evaluation is now being made by the National Park Service, Bureau of Land Management, and Forest Service. No deadline for completion is specified in the House Conference Report.

The areas within Lake Mead National Recreation Area currently being studied are Parashant, Andrus, and Whitmore Canyons and the Shivwits Plateau. For purposes of the Lake Mead wilderness study, current land uses, as specified in the enabling legislation, were adhered to in making decisions on wilderness unit designations. The issue of resolving the question of further Grand Canyon boundary adjustments is complex, and is not expected to be resolved prior to completion of the wilderness study for the recreation area.

2. Grand Canyon Wilderness Recommendation

The wilderness recommendation for Grand Canyon National Park is being readied for submission to Congress. Primitive areas within

Grand Canyon National Park which are adjacent to the recreation area, and which are also being proposed for wilderness designation, were taken into consideration during the development of the Lake Mead wilderness proposal. The areas are contiguous and form a contiguous unit of primitive lands extending eastward from the Grand Wash Cliffs to the Pine Mountains.

3. Lake Mead Boundary Revisions

The National Park Service is proposing to adjust the boundary of Lake Mead National Recreation Area. The areas under consideration are not of wilderness quality, and have been excluded from further wilderness consideration.

4. Lake Mead Natural Resources Management Plan

The Natural Resources Management Plan for Lake Mead National Recreation Area includes an approved road system for the recreation area. The plan identifies access routes, recreational roads necessary for the administration of the recreation area. The wilderness recommendation does not propose closing any of these roads, and does identify roads necessary for recreational access or sustaining grazing operations.

5. Bureau of Land Management - Wilderness Studies

The Bureau of Land Management offices in Las Vegas, Nevada and St. George, Utah were consulted to identify and locate the areas near the recreation area which will become wilderness study areas as required under the Bureau's new Organic Act. As yet, the Bureau has no definite studies or plans underway.

II. DESCRIPTION OF THE ENVIRONMENT

A. LAKE MEAD NATIONAL RECREATION AREA

I. Purpose

Lake Mead National Recreation Area was formally established by Public Law 88-639 on October 8, 1964. This enabling legislation specifies that the recreation area will be used in the following ways:

SEC. 4. (a) Lake Mead National Recreation Area shall be administered by the Secretary of the Interior for general purposes of public recreation, benefit, and use, and in a manner that will preserve, develop, and enhance, so far as practicable, the recreation potential, and in a manner that will preserve the scenic, historic, scientific, and other important features of the area, consistently with applicable reservations and limitations relating to such area and with other authorized uses of the lands and properties within such area.

(b) In carrying out the functions prescribed by this Act, in addition to other related activities that may be permitted hereunder, the Secretary may provide for the following activities, subject to such limitations, conditions, or regulations as he may prescribe, and to such extent as will not be inconsistent with either the recreational use or the primary use of that portion of the area heretofore withdrawn for reclamation purposes :

- (1)** General recreation use, such as bathing, boating, camping, and picnicking;
- (2)** Grazing;
- (3)** Mineral leasing;
- (4)** Vacation cabin site use, in accordance with existing policies of the Department of the Interior relating to such use, or as such policies may be revised hereafter by the Secretary.

SEC. 5. The Secretary of the Interior shall permit hunting, fishing, and trapping on the lands and waters under his jurisdiction within the recreation area in accordance with the applicable laws and regulations of the United States and the respective States : Provided, That the Secretary, after consultation with the respective State fish and game commissions, may issue regulations designating zones where and establishing periods when no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment.

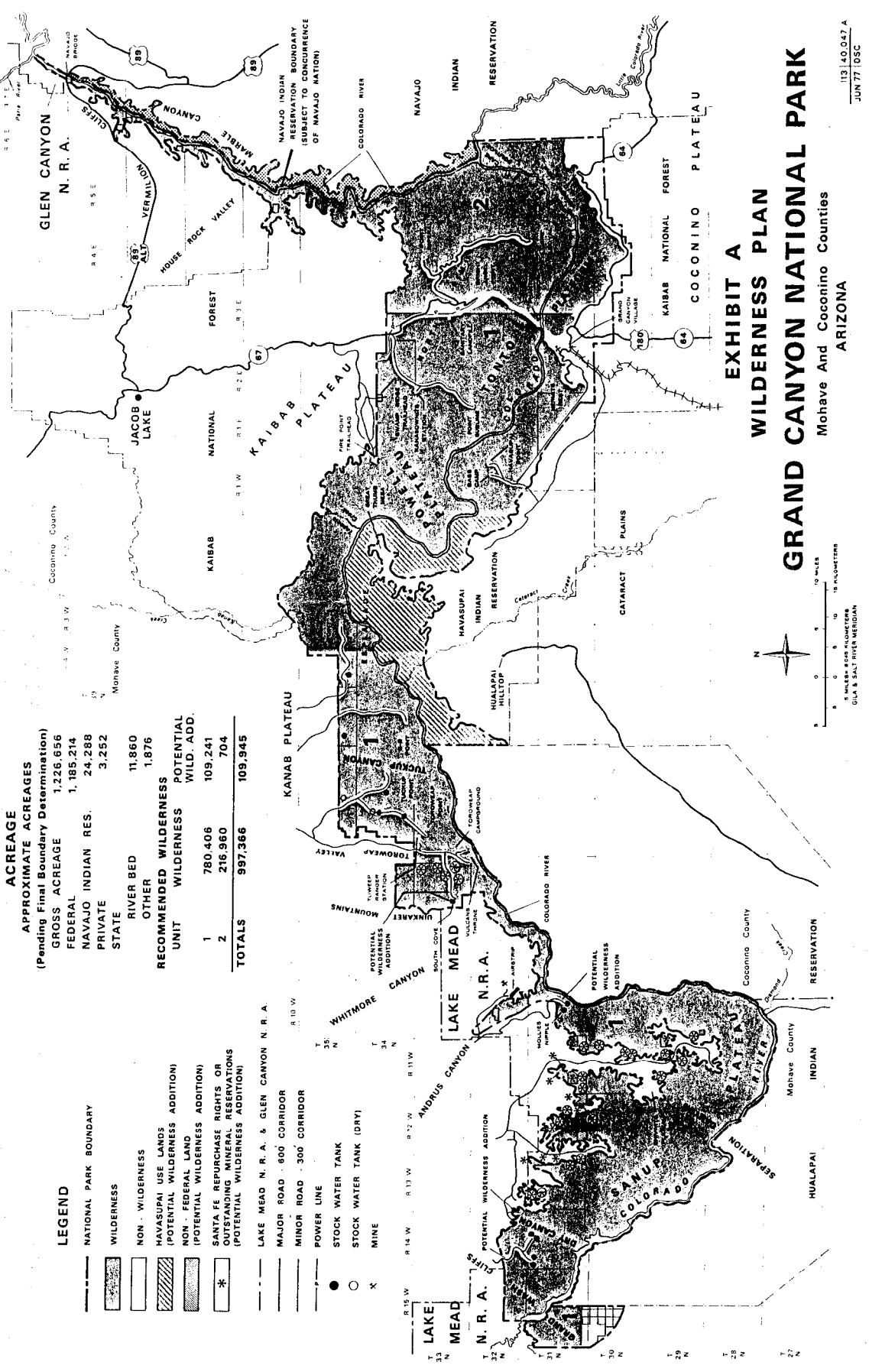


EXHIBIT A **WILDERNESS PLAN** **GRAND CANYON NATIONAL PARK** Mohave And Coconino Counties ARIZONA

2. Access and Regional Setting

Lake Mead National Recreation Area is in southeastern Nevada and northwestern Arizona. It is within 30 miles of greater Las Vegas and within an easy day's travel of the high density population centers of southern California. Cross-country access to the area is via U.S. Highways 93 and 95, which are main spur routes connecting Interstate 40 (Chicago to Los Angeles) with Interstate 15 (Salt Lake City to Los Angeles). Internal access in the western portions of the recreation area consists of a well developed system of graded and paved roads. The eastern portions of the recreation area are reached over graded and primitive dirt roads.

Las Vegas has a full complement of air-transportation facilities as well as railroad and bus terminals. The recreation area headquarters is in Boulder City, just west of Hoover Dam. Kingman, Arizona, is about 30 miles from Katherine at the southern end of the recreation area, and Phoenix, Arizona is less than 250 miles away.

Nearby national attractions include Grand Canyon National Park, Death Valley and Joshua Tree National Monuments, and the Southern Utah Park group. State and local parks, Lake Havasu, and the Lower Colorado River constitute significant interstate attractions as does the entertainment at Las Vegas and the winter-use facilities at Mount Charleston in nearby Toiyabe National Forest. The region immediately surrounding the western and central portions of the recreation area is administered by the Bureau of Land Management and is open to mining, grazing, hunting, and other recreational uses. The eastern portion of the recreation area is abutted by the Hualapai Indian Reservation and Grand Canyon National Park.

Lake Mead National Recreation Area offers the opportunity for a wide range of land and water-oriented recreational activities on two vast reservoirs of fresh water surrounded by a desert landscape of barren mountains and plateaus, deep canyons, and sprawling alluvial fans. A diversity of plants and animals occupy a wide variety of ecosystems within the recreation area and significant historic and archeological resources are also present.

3. Land Classification

The lands within Lake Mead National Recreation Area are classified according to present management and administration into 4 zones and 11 subzones. The wilderness, natural environment, and reservoir subzones cover most of the lands within the recreation area. The Statement for Management, Lake Mead National Recreation Area, 1976, contains detailed land classification descriptions. The recreation area contains 1,496,600 acres which are classified as follows:

Natural Zone

Lands that remain largely unaltered by human activity except for approved developments required for management, use, and appreciation of the recreation area.

Wilderness Subzone

Those lands of wilderness quality which are proposed for wilderness designation or are being managed as wilderness.

Environmental Protection Subzone

This subzone contains two wildlife habitat areas which are of ecological significance within the recreation area. One area of critical habitat for the desert bighorn consists of 13,400 acres that are being managed to perpetuate the habitat. The other area is the Overton State Wildlife Management Area of 10,560 acres. This area is managed under a lease to the State of Nevada to provide suitable habitat for waterfowl.

Outstanding Natural Feature Subzone

Lands being managed for their ecological values, such as areas containing unique geological formations, unique plant communities, and hot springs.

Natural Environment Subzone

Lands managed for environmentally compatible recreation activities based upon and protective of the natural environment.

Historic Zone

Historic Subzone

Areas of local and regional historic significance which are worthy of protection and interpretation.

Archeological Subzone

This subzone contains areas of known archeological resources and enough surrounding terrain to protect and interpret those resources.

Development Zone

This zone includes areas where intensive recreation development has substantially altered the natural environment. Development zone

areas are managed to provide the optimum opportunity for visitors to participate in various recreational activities. This zone contains 19 developed areas totaling 26,820 acres.

Special Use Zone

Reservoir Subzone

This subzone includes all water impounded behind Davis Dam in Lake Mohave, and behind Hoover Dam in Lake Mead. National Park Service management is limited to recreational use only. The Bureau of Reclamation manages the same water for flood control, international commitments of water, irrigation, and power generation. There are approximately 175,360 acres of water surface included within this subzone.

Project Lands Subzone

These are approximately 4,093 acres of land which were excluded from the recreation area by the Act of October 8, 1964, to be managed exclusively by the Bureau of Reclamation.

Private Development Subzone

All lands which are privately owned and are being utilized by the owner and managed for development purposes.

Private Lands Subzone

All lands which are privately owned or state owned, and which are open space and being managed as such by the owner.

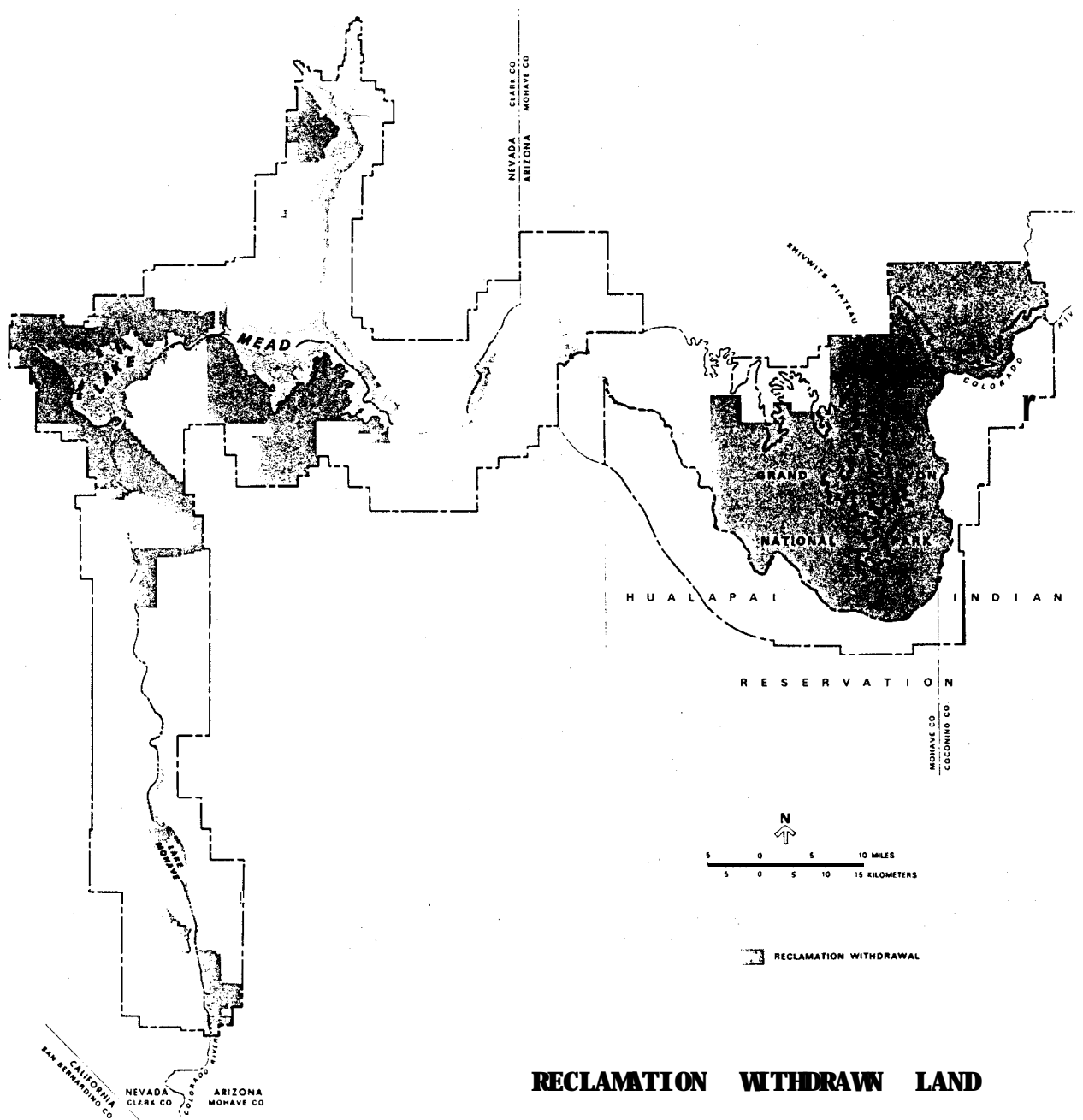
Resource Utilization Subzone

This includes lands being actively used for prospecting or mineral extraction under lease. Mineral repurchase rights remain in private ownership on certain sections of the Shivwits Plateau portion of the recreation area in Arizona, and livestock grazing is permitted throughout the recreation area.

4. Land Use

a. Reclamation

The Bureau of Reclamation currently has withdrawals on about 20 percent of the land area of Lake Mead National Recreation Area. These lands are located in areas most likely to be used for potential reclamation purposes such as power generating facilities, transmission lines, pipelines, service roads, and the like. Approximately 4,093 acres are withdrawn for administration of Davis and



RECLAMATION WITHDRAWN LAND

LAKE MEAD
NATIONAL RECREATION AREA
ARIZONA-NEVADA

Hoover Dams. A 300-foot-wide management zone has been withdrawn landward from the high-water line of lakes Mohave and Mead. Except for developments in the vicinity of the dams, the use of this strip of lakeside land for reclamation has been negligible.

Under Section 2 of the enabling legislation, all of Lake Mead National Recreation Area is subject to use for reclamation purposes. Many existing powerline transmission corridors are not completely included within the boundaries of existing withdrawals, and 160,190 acres have been designated by Reclamation as having high potential as pumped storage sites, although withdrawals for reclamation purposes had been revoked in 1971.

The Southern Nevada Water Project, including the Alfred Merritt Smith Water Treatment Facility, is within the recreation area. The first stage of the project was completed in 1971, and the second stage is projected for completion in 1980. The second stage will double the present daily capacity of 200 million gallons and will divert an average of 166,800 acre-feet of water from Lake Mead each year. This project supplies water to the rapidly growing area of Las Vegas, North Las Vegas, Henderson, and Boulder City.

b. Recreation

Lake Mead is 115 miles long, has 229 square miles of water surface and over 550 miles of shoreline. Lake Mohave is 67 miles long, has 45 square miles of water surface and over 250 miles of shoreline. Most of the recreational use of the area is oriented toward these two large bodies of water. Visitation to the area has climbed from 2.25 million in 1960 to more than 6.5 million in 1977. This rate is expected to continue into the foreseeable future, paralleling the rate of population increase in southern California and southern Arizona.

The most popular recreational activities are boating, fishing, camping, swimming, and water-skiing. During the last decade there has been a shift away from the more passive recreational pursuits, such as fishing and houseboating, toward the more active water-skiing, hot boating, scuba diving, and sailing. Many houseboats now tow one or more small craft for these purposes. Requests are increasing to establish water-skiing courses by individuals and clubs within the area. Water sports, in general, seem to be on the upswing. Hot boat races, endurance and speed skiing races have become a yearly program with the local ski clubs and applications are increasing from special use groups to have annual races, regattas, derbys, and enduros.

Except for the extremely cold water in the upper section of Lake Mohave, the two lakes are ideal for swimming most of the year. Scuba diving is becoming an increasingly popular activity, and

courses are being held by the University of Nevada within the recreation area.

Fishing occurs throughout the year on both lakes and is by far the most popular activity. Senior citizens enjoy the recreation area during the cooler months of the year. Trout and bass are the most sought after fish for both the onshore and the boating anglers. While both lakes provide good fishing opportunities and catches, there has been a noticeable decline in black bass catches in the past few years. Fluctuating reservoir levels have not been timed to provide an ideal habitat for black bass reproduction, and striped bass dominate the bass fishery.

Development facilities and visitor use are heavily concentrated along the shorelines of the lakes in the immediate vicinity of the area's concession operations. These recreational resort centers provide lodging, food service, trailer parks, stores, marinas, and a number of other visitor services. Major concession operations are accessible by paved road and are located at Cottonwood Cove, Katherine Landing, Temple Bar, Willow Beach, Callville Bay, Echo Bay, Overton Beach, Las Vegas Wash, and Boulder Beach. Use of Lake Mead in the Boulder Basin area is reaching near capacity, and increased use of the upper end of the lake in the Pierce Ferry and South Cove areas can be expected, as well as increased use of Lake Mohave.

Boulder Beach, Katherine Landing, and Cottonwood Cove are the area's major day-use and camping centers. Callville Bay and Las Vegas Wash are heavily used for water-based recreation. The Virgin Basin, Overton Arm, and more remote portions of Lake Mead receive substantially less use. River running groups through the Grand Canyon use Pierce Ferry, South Cove, or Temple Bar as exit points.

All campsites, except for concessioner-operated trailer campgrounds, are provided and managed by the National Park Service. There are more than 1,400 Class A campsites in the recreation area with vehicle access, paved parking areas, modern sanitary facilities, picnic tables, and fireplaces. The small campgrounds at Callville Bay and Echo Bay receive little use; however, the 1,374 Class A sites in the rest of the recreation area receive heavy use during seasonal and holiday periods. The recreation area also has more than 3,000 undeveloped primitive camping locations, the majority of which are between the lakeshore and the high-water line. An increasing number of chartered buses are arriving in the area from southern California, bringing groups of up to 200 people for tent camping and water-oriented recreation.

Many visitors arrive driving or towing off-road vehicles or motorcycles as part of their camping equipment, and off-road use is difficult to confine to designated trails and areas.

Recreational use of the backcountry is extremely light when compared with developed area and lake use. Cross-country hiking to explore the wilderness of the area's mountains and canyons is the major non-water oriented activity during the cool months of spring, fall, and winter. Because of its higher elevation and thus cooler temperatures, the Shivwits Plateau receives some summer camping and hiking use. Backcountry camping is being tried by more visitors each year. Specific data are not available on the number of visitors engaging in backcountry hiking, camping, sightseeing, mountain climbing, or rockhounding.

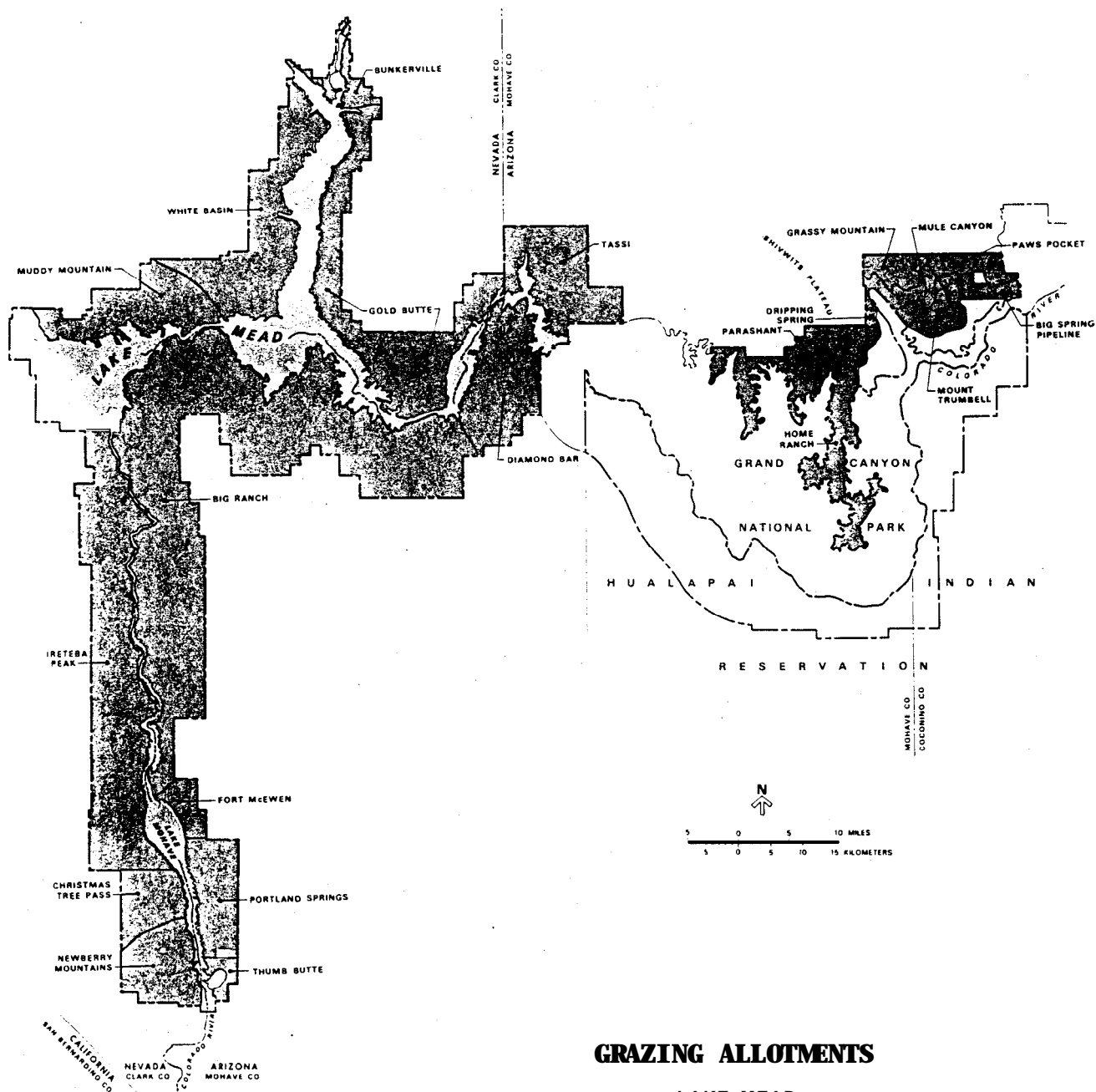
Hunting is permitted in most sections of the recreation area. As specified by the enabling legislation for the recreation area and in the Wilderness Act of 1964, hunting is an acceptable use in wilderness areas of national recreation areas. An estimated 4-5,000 hunter-days are spent in the Overton Wildlife Management Area hunting waterfowl, and 400-500 hunter-days are expended on the Shivwits Plateau hunting mule deer. Desert bighorn hunting under permits issued by the states of Nevada and Arizona account for about 200-250 hunter-days per year.

C. Grazing

Nearly all of the suitable land within the recreation area has been grazed by livestock at one time or another, since about 1860 when Mormon ranchers first drove large herds through the area. Where there is suitable terrain and vegetation, and where water can be made available, this land use has continued following creation of the recreation area. Early grazing practices were not controlled, and severe overgrazing almost completely eliminated native grasses in many areas and their replacement by desert shrubs.

Historically, there has been an agreement between the National Park Service and the Bureau of Land Management that properties not being directly utilized for Lake Mead recreational activities can be used for cattle grazing. As a result, fully 80 percent of the recreation area's land base is subject to livestock grazing under leases issued by the Bureau of Land Management and approved by the National Park Service. As livestock grazing was practiced prior to the establishment of the recreation area and is directly authorized by statute, the presence of grazing livestock within wilderness units would be an acceptable use.

The grazing allotments shown on the accompanying map are not established along political boundaries. Because of this, and a lack of boundary fencing around the recreation area, domestic livestock, feral burros, wild horses, desert bighorn, and mule deer roam freely in search of suitable watering sites and vegetation. The following is a list of the number of acres in each allotment which



GRAZING ALLOTMENTS **LAKE MEAD** **NATIONAL RECREATION AREA** **ARIZONA-NEVADA**

are within the recreation area, the type of grazing allowed, and the maximum number of animal unit months (AUMs) which can be permitted in favorable years in areas grazed under a perennial system.

<u>ALLOTMENT</u>	<u>EPHEMERAL</u>	<u>PERENNIAL</u>	<u>AUMs</u>
Diamond Bar	49,400	23,229	400
Big Ranch	288,392		
Fort McEwen	9,697		
Portland Springs	30,360		
Thumb Butte	6,098		
Newberry Mountains	35,032		
Christmas Tree Pass	17,143		
I reteba Peak	131,092		
Muddy Mountain	46,094		
White Basin	83,819		
Bunkerville	12,021		
Gold Butte	92,264		
Tasi		25,000	443
Parashant		18,405	327
Home Ranch		108,251	1,782
Dripping Spring		16,033	290
Grassy Mountain		10,571	437
Mule Canyon		19,682	598
Mt. Trumbell		15,815	506
Paws Pocket		7,897	486
Big Spring Pipeline		13,770	804
	<u>801,394</u>	<u>258,653</u>	<u>6,363</u>

The Bureau of Land Management utilizes an ephemeral grazing system for most of the lands under grazing allotment within the recreation area. In general, these are areas receiving less than eight inches of precipitation each year, lands below the 3,200-foot contour line, and lands on which only a minor percentage of the total plant composition is made up of desirable perennial forage plants. Ephemeral range does not consistently produce forage, but periodically provides annual vegetation suitable for livestock grazing. In years of abundant moisture and other favorable climatic conditions, a large amount of forage may be produced. Favorable years, however, are unpredictable, and the season is almost always short.

Livestock are placed on the range only when the potential for ephemeral forage exists, or after it is available. In response to, or in anticipation of, an ephemeral grazing application, a BLM range conservationist examines the allotment to determine the potential for production of adequate forage to support livestock. The carrying

capacity estimate (measured in animal unit months or AUM's) is based on 50 percent of the anticipated forage production, the remaining 50 percent is reserved for wildlife use, watershed protection, and seed production.

Livestock grazing within the recreation area is normally light and far below the number of animal unit months available for each allotment because of the lack of grass cover and water to support substantial herds. Grazing pressure is normally heaviest around stock tanks and in lowlands with relatively flat terrain where access is available over established roadways to haul water, feed, and livestock as well as equipment for construction and maintenance of stock tanks. These lands are generally not suitable for wilderness designation because they either support substantial recreational use, vehicular use, development use, or are immediately adjacent to areas which do. Most of the proposed wilderness units are composed of rugged and arid topography, and are unsuited to grazing operations. Roads, and tanks or water pockets found to be needed to support current grazing operations and requiring road access for maintenance are not included in units being proposed for wilderness designation.

d. Mining

Nearly all of Lake Mead National Recreation Area has been prospected. The recreation area was closed to mineral entry because of withdrawals for reclamation purposes. However, an unknown number of mining claims were filed prior to reclamation withdrawals, and claims exist on lands that were not withdrawn. By passage of Public Law 94-429 September 28, 1976, Congress called for the adoption of regulations to control mining activities within units of the National Park System. Section 8 of the Act requires all persons holding unpatented claims to record them with the area's Superintendent by September 28, 1977 or the claim will be presumed abandoned. There have been no unpatented claims recorded with the Superintendent of Lake Mead within any of the proposed wilderness units.

The Katherine Mine is a patented claim within the recreation area, and is about three miles northeast of the Katherine Landing development. The mine is inactive and the land has been subdivided for residential homesites. About 20 dwellings have been constructed, and access is maintained via the National Park Service's road to the Katherine vacation cabin sites.

The act of October 8, 1964 (Public Law 88-639; 78 Stat. 1039) provides for mineral leasing within Lake Mead National Recreation Area, subject to limitations, conditions, or regulations prescribed by, and at the discretion of, the Secretary of the Interior, to such extent as will not be incompatible with recreational use or the primary use of areas withdrawn for reclamation purposes.

At the present time there are 2,880 acres in four mineral leases (one tungsten, one gold and silver, and two for oil and gas) outstanding in the recreation area, and one 400-acre lease under appeal for renewal. The locations of these leases are shown on the preliminary proposal map.

All existing mineral leases and valid mining claims have been excluded from being proposed for wilderness. All leases which are under application but pending, and which otherwise fulfill the criteria for wilderness, have been recommended as potential wilderness additions.

National Park Service policy is that privately owned lands or lands on which there are privately owned interests are not recommended for wilderness, unless acquisition of such lands or interests by the United States is assured. The Shivwits Plateau and certain lands east of Lake Mohave are burdened by mineral reservations and railroad repurchase rights retained by Santa Fe Industries, as indicated on the preliminary map. It is the intent of the National Park Service to acquire these outstanding reservations and rights.

B. CULTURAL RESOURCES

I. Archeological

The archeology of the Lake Mead area is not well known. There have been a number of surveys and excavations but the nature of the archeological record and project-specific approach to the prehistoric resources have not facilitated a comprehensive interpretation. Physical remains range from small surface pueblo sites in the Virgin and Muddy River Valleys to deposits in cave shelters and extensive lithic scatter on bajada slopes.

Man inhabited the Tule Springs-Lake Mead area some 11,000 to 13,000 years ago. As climatic conditions changed, these early large-game hunting people turned to smaller game and plant gathering. This new adaptation to the changing environment has been termed Desert Culture. In true desert country such as Lake Mead, this culture persisted until after the advent of non-Indian exploration and settlement. This adaptation became widespread and was the base for development of succeeding cultures.

The Basketmaker Culture apparently developed from the earlier Desert Culture base. The basketmakers lived from northern New Mexico and adjoining parts of Colorado, through northern Arizona, southern Utah, and into southern Nevada. So named for elaborate basketry found in dry caves of the area, these early people lived by hunting and gathering food. They lived in caves or temporary shelters and later in pit houses. Basketmakers lived at a number

of locations within the Lake Mead area including the lower Virgin and Muddy River, Willow Beach, below Hoover Dam, and Gypsum Cave.

As the Basketmaker people became more and more dependent 'on farming, old Desert Culture patterns of hunting, gathering and mobility gradually changed to a sedentary farming life. Permanent houses and villages, and a new way of exploiting the environment replaced early life patterns. Impetus for this development came from the village-dwelling Anasazi Culture, centered in the Four Corners area. The Basketmakers, and their Anasazi descendants living in the Virgin and Muddy River Valleys, developed a specialized way of life based on farming. They turned oasis-like river valleys into productive farmlands.

Around A.D. 1100 there seems to have been a slight decrease in population and within fifty years, they had abandoned the land. Meanwhile, Shoshonean speaking people, ancestors of the Paiutes who had retained the old Desert Culture way of life, came into the valleys. Ruins along the Overton Arm are the remnants of this vanished culture.

For hundreds of years, Willow Beach, a campsite on the Colorado River, functioned as a crossroads for Indians who exchanged trade goods between the Southwest and Pacific Coast regions. Pueblo-dwelling farmers from the Virgin Valley, and the less-sedentary Hakataya people from the mountains and desert east of the river came to meet another Hakataya subgroup from west of the river, the Amacavas, the middle men who exchanged Pacific Coast sea-shells, steatite, and asphaltum, for salt.

The Hakataya culture took on two distinctive patterns. The Cerbat branch, named for the Cerbat Mountains, followed the Desert Culture lifestyle. Hakataya people such as the Amacava, and their descendants the Mohaves, farmed the rich bottomlands. During the off-seasons, they hunted and gathered plant resources in the nearby desert. After A.D. 1100, these peoples stopped visiting the Willow Beach area, leaving as sole inhabitants the Shoshoneans with their distinctive pottery and projectile points.

The Yuman speaking Mohaves, who continue to inhabit the lower Colorado, lived an informal and casual life in early historic times. The river provided fish as well as rich topsoil for farming. These people grew corn, beans, squash, gourds, tobacco, and sunflowers. The Mohaves seldom ventured into the mountains for food supplies. Although noted as a loosely organized people, the Mohaves spent a great deal of effort promoting warfare. Their lifestyle changed only when the Federal Government placed them on reservations in the late 1800s.

The southern Paiutes also lived in this area. Their way of life demonstrated a near perfect ecological adaptation to the, desert environment. The Shoshonean-Paiute way of life was essentially that of the earliest Basketmakers and of the Desert Culture, one based upon a nomadic existence.

Once non-Indian exploration and settlement occurred in the Southwest, military defeat resulted in the native peoples being relegated to reservations. The Paiutes, Mohaves, and others eked out a living on the reservations or worked on ranches and mining camps.

The earliest scientific excavations in the area were done by M. R. Harrington and Irwin Hayden during the 1920s and 1930s in the Virgin and Muddy River Valleys where they investigated some 123 small pueblo and pit house sites. A stratified campsite at Willow Beach was excavated in 1936 by M. R. Harrington, continued by G. C. Baldwin in 1947-48 and completed by A. H. Schroeder in 1950. In 1947, Baldwin excavated several sites between Willow Beach and Cottonwood Island. James Maxon excavated a cave shelter in Grapevine Canyon during 1969-1970.

Several archeological surveys have been done in the Lake Mead National Recreation Area. These surveys have been quite recent and are related to construction or land exchange projects. Some of these projects were quite small in extent (Bondley and Brooks, 1973; Brooks and Sedgewick, 1971; Brooks, Larson and York, 1974; Dodge, 1975; King, 1976; Morehead, 1975; Quinn, 1975 and 1976). Others include a survey around Fire Mountain in Nevada (Quinn, 1976a) and a survey east of Katherine and southeast of Bullhead City in Arizona (Curriden, 1977). Thus, a major E.O. 11593 archeological survey at Lake Mead is still a prime consideration. Although a parkwide archeological inventory is needed, available information indicates the presence of at least 500 sites near or within the proposed wilderness units. Most of the units have not been surveyed and it is likely that many additional undescribed sites exist.

The type of materials one might find in the proposed wilderness areas would be lithic scatter, broken pottery, petroglyphs on boulders, mescal pits, and stone circles. The bajada slopes seem to have been used to collect lithic material, for temporary camps, and for passage between mountains and rivers. There are petroglyphs and cave shelters which were used by other prehistoric and ethnographic groups in the hills, but the total range of archeological sites for the more remote areas is unknown.

The National Register of Historic Places in the Federal Register for February 7, 1978, and supplements have been consulted, and to date, no archeological sites or structures have been listed within Lake Mead National Recreation Area.

2. Historic

To date, no comprehensive interpretative history of the Lake Mead area has been written, but a brief survey of its rich past shows that it spans four centuries from the earliest Spanish explorations to mass recreation at this oasis in the 1970s. The first non-Indian explorer to visit this region and encounter the Mohaves may have been Hernando d'Alarcon, a member of Coronado's 1540 expedition. Other contact with the Indians resulted from the expeditions of Fray Francisco Garces (1776); Silvestre Velez de Escalante (1776); and the Mountain Man, Jedediah Smith (1827). Two years later Antonito Armijo traversed this region on his way from Santa Fe to Los Angeles, establishing what was to become known as the Old Spanish Trail. In 1830 an expedition, which covered the entire route of the Old Spanish Trail, was led by George C. Young and William Wolfskill.

The later efforts of the U.S. Army helped open up this country. The military sponsored a number of expeditions geared to collect various types of data. Captain John C. Fremont and his expedition camped at the Las Vegas Springs in 1844. Not long after the Southwest territories were brought under the control of the United States, the Army sent Captain Lorenzo Sitgreaves to explore this area. The party reached the vicinity of the present recreation area in November 1851. Two years later the military sent Lieutenant A. W. Whipple to survey railway routes across the Southwest. And in 1857, Lieutenant Joseph C. Ives set out to explore the Colorado River. His party, which included geologists, botanists, zoologists, topographers, meteorologists and artists, provided one of the first careful and complete descriptions of the Lake Mead country. The two John Wesley Powell expeditions in 1869 and 1871-72 resulted in much scientific information pertaining to the Colorado River area.

Mormon missionaries established a settlement at Las Vegas in 1855 and abandoned it by 1857 as an unprofitable enterprise. A few ranches were later established in Clark County, and mining began in earnest during the Civil War.

In the late nineteenth century, a number of Mormon and non-Mormon farm settlements sprang up in this territory and were linked to the outside by steamboats and crude roads. Many of the small communities once located at strategic river crossings now lay beneath the impounded waters of Davis and Hoover Dams. These communities included Callville, Rioville, St. Thomas, Bonelli's Ferry, Scanlon Ferry, Pierce Ferry and others. Some of these hamlets were serviced by the paddle-wheel steamboats that struggled upriver. For many years, steamboats up to 175 feet in length and gross tonnages in excess of 200 tons negotiated the sandbars and rapids of the river. Significant artifacts of that period are by ringbolts and eyebolts at Ringbolt Rapids. Another

form of early transport of which some evidence remains extant were the crude wagon roads, some of which cut into the face of sheer cliffs. While much of this road network has been inundated, traces of early roads can be seen in the Pinto Valley and along the old Mormon "Scanlon Dugway."

In the late nineteenth and early twentieth centuries, the lure of precious minerals such as gold and silver drew numerous prospectors to this region. Near the present Davis Dam, a mine complex known as the Homestake proved a profitable venture. A mill and landing that served the town of Searchlight lie beneath Lake Mohave but the abandoned grade of the Quartette Mining Company's railroad can be hiked. In the El Dorado Canyon district eager miners dug a number of pits. Several of these mining camps still exist, although located on patented land. The major mining district in the region was located near Nelsons Landing, a spot now submerged under Lake Mohave. The Techatticup Mine, whose remnants are located just outside the national recreation area boundary, was the area's most significant mine. Extensive mining activity also occurred on the east side of the Colorado near Chloride and smaller camps in the Cerbat locale. Additional mining activity occurred in the area east of Hoover Dam but little exists there except scattered shafts, tunnels, prospect holes and a few foundations. The Anniversary is one of the most significant mines north of Lake Mead. It is in a picturesque canyon a short distance west of the "Bowl of Fire." As was the case throughout North America, the mining camps and boom towns developed quickly and died once the ore veins were depleted. In the 1950s the search for more exotic minerals such as uranium began in the Lake Mead region.

In the Lake Mead country, a few remains tell the story of the open range cattle industry. Located on the Shivwits Plateau and areas to the east, a number of cabins are still in use and give testimony to the lonely lifestyle of the cowboy. At Grand Wash, the Tassi Ranch was constructed of salvageable materials left behind by the construction crews at Hoover Dam.

The Federal Government forever altered the appearance of this region when the Six Companies completed Boulder Dam, now known as Hoover Dam, in 1935. Original roads and wagon trails, town-sites, ferry landing and steamboat landings, mining camps as well as their ancillary structures and numerous prehistoric sites were slowly covered by the rising water impounded behind the dam.

Hoover Dam itself possesses great historical and engineering significance, and is under the jurisdiction of the Bureau of Reclamation. Near the dam on National Park Service land are the abandoned remains of the 1930s U.S. Government Railroad with five existing tunnels. At Pierce Ferry, the Civilian Conservation Corps operated a facility in the 1930s.

The historical record is even more sketchy than the archeological one. Although a number of articles, popular histories, dissertations, and monographs deal with separate components of the Lake Mead story, nothing of a comprehensive nature has been prepared. The National Park Service will fund a major historic resource study to fill this gap to strengthen planning and interpretive data, as a part of the General Management Plan scheduled for FY 78. Two E. O. 11593 surveys have been conducted: Ross Holland, 1972, and Gordon Chappell, 1976. Both Holland and Chappell have identified a number of sites, some of which appear to meet the eligibility Criteria of the National Register of Historic Places. Park Service historian James Mote conducted a site specific survey at Overton Beach in 1975.

No historic sites or structures within Lake Mead National Recreation Area are listed in the National Register of Historic Places as published in the Federal Register of February 7, 1978, and its supplements. Comprehensive Executive Order 11593 surveys have not been completed; however, the Western Regional Office of the National Park Service is currently evaluating the following properties for possible nomination in the National Register.

The Homestake Mine ruins near Davis Dam.

The Quartette Mining Company Railroad grade between Searchlight and Cottonwood Landing.

The cables, catwalk, and trail at the Willow Beach Gauging Station on Lake Mohave north of Willow Beach.

Remnants of the 19th century steamboating era on the Lower Colorado River at Ringbolt Rapids.

The Pinto Valley wagon road.

The Mormon "Scanlon Dugway," "Dugway Associated Road," or "Greggs-Scanlon Road" in the Scanlon Wash area. Some portions are outside of the recreation area or underwater.

The abandoned grade and five tunnels of the U.S. Government Railroad near Hoover Dam.

The seismograph and power station at Pierces Landing.

The reputed Powell Expedition inscription on the summit of Mount Dellenbaugh.

The Dinner Pocket, Pine Valley, and Waring Ranch cabins on the Shivwits Plateau.

A concrete and stone ruin along the Eldorado Canyon paved road just inside of the recreation area.

Formal contact has been made with the Arizona and Nevada State Historic Preservation Officers concerning these properties, and their replies will be available in the final environmental impact statement for this proposal.

C. NATURAL RESOURCES

I. Climate

Because of the different topographical features and elevation differences, there are a variety of climates present in the Lake Mead region. The lower elevations along the Colorado River and the broad valleys between mountain ranges have an arid climate typical of the Mohave Desert. Precipitation is low, averaging only 3 to 5 inches per year. Humidity is also low and averages about 28 percent. Winters are mild, with daily temperatures in January ranging between 32° and 55°F on many days and an average July maximum temperature of nearly 105°F. Evaporation rates are extremely high, and exceed 80 inches per year at the surface of Lake Mead.

Most of the precipitation occurs during the winter months and during July and August. There is a period of about two weeks every summer when warm, moist, tropical air dominates weather conditions in this area. This causes higher than average humidity and scattered thundershowers which cause flash-flooding with rapid runoff and severe erosion and minimal penetration of moisture into the soil. Precipitation during the winter is usually from regional storms of low intensity and longer duration. Snow is infrequent at these lower elevations, averages less than 2 inches per year, and rarely persists on the ground for more than a day or two.

Elevation has a marked effect upon climatic conditions. Precipitation increases and temperature decreases toward the higher elevations of the area and the climate becomes more semi-arid and steppe-like. Above elevations of about 5,000 feet, the temperature averages about 10°F cooler than the lowlands. Summer temperatures on the Shivwits Plateau have average highs in the 90's and lows in the 60's. Winter temperature may drop as low as -10°F. Snow may fall at any time between October and April with total yearly amounts averaging between 18 and 33 inches above elevations of 5,000 feet.

Clear weather is the hallmark of the Lake Mead region. The Sierra Nevada act as effective barriers to moisture-laden storms moving eastward from the Pacific Ocean. Consequently, dark, overcast, and rainy days are held to a minimum, and average less than one per month in the summer and three per month in the winter. The

area along the lower Colorado River, south of Willow Beach, is one of four places on Earth having more than 4,000 hours of sunshine each year.

The region's climate facilitates year-round recreation at Lake Mead. Beach use and water sports are greatly limited during the winter, but the best lake fishing occurs at this time, and the increase in the number of fishermen tends to offset the decrease in the number of other kinds of recreationists. Hot summertime temperatures tend to discourage backcountry use west of the Grand Wash Cliffs, and most of the summertime recreation in this part of the park occurs on or near the lakes. The cooler climate of the Colorado Plateau, east of the cliffs, tends to favor use of the backcountry in this area during the summer, but physical isolation and poor roads have limited such use.

2. Basin and Range Province

a. Geology

Lake Mead National Recreation Area contains approximately 2,350 square miles of biologically and geologically diversified land and water environments. The Grand Wash Cliffs mark the boundary between the Colorado Plateau Province of the eastern recreation area and the Basin and Range Province of the central and western portions of the recreation area.

The Basin and Range Province is characterized by generally north-trending mountain ranges separated by broad, shallow valleys. Many of these intervening valleys have no exterior drainage and form enclosed basins. The mountains are dissected by deep ravines that open into broad alluvial fans. Commonly, adjoining fans coalesce and form a continuous alluvial apron along the base of the mountains. These slopes extend outward into the valleys where they merge with the valley floor, or extend across the valley to join opposing slopes to form an alluvial divide. The valley floors are usually nearly level and often contain one or more playas, or dry lakes, where silt, clay, evaporites, and weakly cemented gravels have been deposited.

The age of the strata in the tilted, fault-block mountains ranges from Precambrian to Tertiary, while the sediments in the intervening structural basins are all younger than the Mesozoic and consist chiefly of late Tertiary and Quaternary deposits.

Precambrian rocks are exposed in the Virgin Mountains, in the southern part of the Grand Wash trough, along the lower Grand Wash Cliffs south of the Colorado River, and along the floor of Grand Canyon. To the south and west of the mouth of Grand Canyon at the Grand Wash Trough, the mountain ranges are

composed of Precambrian rocks which are locally overlain by volcanic rocks of Cretaceous and early to middle Tertiary age. The Precambrian rocks can be divided into metamorphic rocks, chiefly gneisses and schists, and granitic rocks. The gneisses and schists are locally intruded by pegmatite and alaskite dikes, and are cut by quartz veins. Most of the granitic rocks occur as irregular plutons and represent different ages of plutonic activity.

Paleozoic rocks are not as well exposed in the Basin and Range section of the recreation area as they are in the Colorado Plateau section. West of the Grand Wash Cliffs, the Paleozoic rocks are similar to those on the Colorado Plateau but they are exposed along the upturned edges of tilted fault blocks. South of a line that extends from near Hualapai Wash southeast along the lower Grand Wash Cliffs, the region is essentially devoid of Paleozoic and overlying Mesozoic rocks.

The Paleozoic column comprises a basal sequence of marine Cambrian detrital rocks overlain by a considerable thickness of carbonates of Cambrian through Carboniferous age. Late Carboniferous and early Permian sediments are clastic and in part continental, but the youngest rocks of Permian age reflect deposition in a shallow epeiric sea.

The Mesozoic system is represented in the recreation area by a varied assemblage of sedimentary rocks. They are chiefly continental except for part of the Lower Triassic Moenkopi formation which is of marine origin. In the Basin and Range Province portion of the recreation area, Mesozoic strata are only found north of Lake Mead.

Cenozoic rocks are exposed widely in the central and western portions of the recreation area, and consist primarily of late Tertiary and Quaternary deposits. Older Cenozoic rocks are preserved only as scattered remnants. A sequence of Cenozoic volcanic rocks overlies the Precambrian basement complex in the Hoover Dam-Davis Dam area. In this area, the Oligocene or older Patsy Mine andesites and basalts are overlain by the Golden Door pyroclastic volcanic rocks of acidic to intermediate composition and early to middle Miocene age. These in turn are covered by late Miocene Mount Davis andesites and basalts. Conglomerates and other sedimentary rocks are present in subordinate proportions throughout the sequence. Muddy Creek basin beds of late Miocene and Pliocene age locally overlie the older rocks.

Cenozoic rocks are widespread north of Lake Mead where they are chiefly fanglomerates, fluvial conglomerates, and lake beds. The Thumb formation and the Overton fanglomerate are of late Cretaceous or early Tertiary age. The Overton fanglomerate, which contains allochthonous blocks of extraordinary size, is thought to

represent fans shed from advancing thrust plates of Laramide age. The Horse Spring formation is early to middle Miocene and includes lacustrine and fluvial deposits, including a distinctive assemblage of freshwater limestone, dolomite, magnesite, and tuff. Muddy Creek basin beds unconformably overlie older rocks over wide areas and are also present locally south of Lake Mead.

In the Grand Wash trough, conglomerates, fine-grained deposits, and the Hualapai limestone of the Muddy Creek formation are the dominant Cenozoic rocks. Conglomerate, siltstone, sandstone, and freshwater limestone of the Tassi formation of probable Tertiary age are exposed in one small area several miles north of Lake Mead.

Distributed along the valley of the Colorado River are fluvial and lacustrine deposits which are clearly associated with the river. Such deposits include several generations of moderately cemented gravels, the Pleistocene Chemehuevi lake beds, unconsolidated terrace gravels, and recent channel deposits. The latter are now mostly covered by the impounded waters of Lake Mead. Pediment gravels of probable Pleistocene age are widely exposed in the interfluvies. Basalt flows of Pliocene and Pleistocene age also occupy large areas in the region of the Grand Wash trough and the upper Grand Wash Cliffs. These flows follow drainages which were graded to the Colorado River.

b . Biotic Communities

The classification of biotic communities in the Basin and Range Province portions of the recreation area is based on the natural groupings of plants and animals as described by Bradley and Deacon (1967) in; The Biotic Communities of Southern Nevada. Minor changes in classification result largely from the two major physiographic provinces found in the recreation area and the transition zone between them. Minor transzonal plant and animal communities and similar sophistications can be considered as separate entities, but essentially, they reflect only modifications of the primary ecosystems in the recreation area.

There are three major zones of vegetation within the Basin and Range Province; creosotebush community, blackbrush community, and pinyon/ juniper woodland. The only transzonal community type as described by Bradley (1967) which occurs in the basin and range province is the desert riparian community.

ZONAL COMMUNITY TYPES

Desert Shrub Vegetation Types

The desert shrub complex in the basin and range portion of the recreation area encompasses two distinct community types. The most widespread of these is the creosotebush community which is

generally the most common in all southern deserts of North America. It is locally well developed on lower bajadas, alluvial fans, and playas, between elevations of 500 to 3,500 feet. It may be found occasionally at higher elevations on arid, south-facing slopes. Near the Colorado River, the topography occupied by this community is especially rock and rugged. Soils in this community typically develop on gray alluvium and generally have high salt-alkali contents which often form caliche hardpans. This community has extreme fluctuations of daily and seasonal temperatures and precipitation.

Vegetation cover is sparse in this community and dominated by creosotebush (Larrea tridentata) and bur-sage' (Ambrosia dumosa). Other species common to this community are mormon tea (Ephedra nevadensis), brittlebush (Encelia farinosa), range ratany (Krameria parvifolia), and indigo bush (Dalea fremontii). Following periods of above average precipitation, profusions of annual wildflowers can be observed. Plants such as wild heliotrope (Phacelia crenulata), plantain (Plantago insularis), pebble pincushion (Chaenactis carphoclinioides), and diddleneck (Amsinckia tessellata) can produce a colorful blossom which is striking in this desert environment.

Diurnal lizards and nocturnal snakes are relatively common reptiles in this community. The Gila monster reaches its northernmost range in this area, but like the chuckawalla and the desert tortoise is not abundant. Densities of bird species are low. Gambel's quail, raven desert sparrow, horned lark, roadrunner, and the cactus and rock wrens occur in this community. Five species of bats are common to abundant as are seven species of small rodents. The blacktail jackrabbit and the desert cottontail sometimes become locally abundant. Carnivores such as the coyote, kit fox, badger, and the bobcat are relatively common depending upon the supply of smaller animals. The desert bighorn is a rare and transient visitor to this community.

The feral burro, wild horse, and domestic livestock graze within this community. The creosotebush community is found in varying amounts in all of the proposed wilderness units in the central and western portions of the recreation area. The most extensive stands are found in Units 13 and 14.

The blackbush community is similar but of greater density than the creosotebush community. Although small in total area, it is widely scattered throughout the recreation area occurring at elevations of 3,000 to 4,000 feet. Small isolated stands are occasionally found at higher elevations. The soils of this community are generally more porous, have lower salt contents, are more permeable than the soils of the creosotebush community, and have slightly higher organic contents. Cooler temperatures and short sporadic snowfalls are considered normal.

Plants frequently associated with this community include Joshua tree (*Yucca brevifolia*), mormon tea (*Ephedra viridis*), rabbitbrush (*Chrysothamnus teretifolius*), matchweed (*Gutierrezia sarothrae*), and flat-topped buckwheat (*Eriogonum fasciculatum*). While the herbaceous composition is generally the same as the creosotebush community, perennial grasses such as Indian rice grass (*Oryzopsis hymenoides*) and needle grass (*Stipa speciosa*) are more abundant.

Reptiles are well represented but are not generally as numerous as in the neighboring community. Sage sparrow, ladder-backed woodpecker, raven, and cactus and rock wrens are the more abundant resident birds. Most mammals that are residents of the creosotebush community also inhabit this community. The desert bighorn sheep is more than a transient here and grazed the upper elevations. Non-native burros, horses, and/or domestic cattle are also more common users. The blackbrush community predominates in parts of proposed Wilderness Units 18 and 19, and it is a secondary community in Potential Wilderness Units A, C, D, F, and J, and in proposed Wilderness Units 5 and 7.

Woodland Vegetation Type

The woodland vegetation complex in the basin and range portion of recreation area is represented by only one community type; the pinyon/ juniper community. This community is widespread throughout the southwestern United States, but is not common to the Lake Mead portions of this province. The Christmas Tree Pass area near the recreation area's southwestern corner is the only area exhibiting this higher growth-form and more complex interrelationship of plant and animal life. It is in a small area approximately 3,200 to 4,200 feet in elevation. The steepness of the upper granitic formations possibly limits the extent of soil formation, thereby restricting vegetative growth to the deeper, more developed sites in portions of the Grapevine Canyon-Christmas Tree Pass area. Generally surrounded by the blackbrush community, this area receives a greater amount of annual precipitation. Typically, it has well-drained soils that are suspected of having a greater organic matter content than occurs in the adjoining desert shrub communities.

The dominant species of plants in this woodland community are the California juniper (*Juniperus californica*) and the pinyon or single-leaf pine (*Pinus monophylla*). Gambel oak (*Quercus gambelii*) and nolina (*Nolina bigelovii*) are also found in this community. Herbaceous plants are well represented. Desert mariposa (*Calochortus kennedyi*), Indian paintbrush (*Castilleja chromosa*), groundsel (*Senecio multilobatus*) and many others add to a colorful April and May floral display.

Although several species of reptiles can be found, they are not as well represented here as in the communities at lower elevations. Bird species include rock wren, red-tailed hawk, common bushtit, western bluebird, and Gambel's quail. Mammals are well represented. The blacktail jackrabbit and desert cottontail are sometimes found in large numbers, particularly at lower elevations. These two small game mammals, together with Gambel's quail and mourning dove, make this section of the recreation area a major locality for upland game hunting. Several signs and positive sightings of bighorn sheep have recently been made nearby. Although mule deer are generally common to this ecosystem, they are rare within the recreation area. Common carnivores include bobcat, coyote, and gray fox. Mountain lion and badger may be present. Numerous species of rodents can be found throughout this community. Domestic livestock and feral burros have frequented and continue to use this community.

The pinyon/juniper community is found in very limited areas of proposed Wilderness Unit 1 and is absent from all other recreation area lands that lie within the basin and range province.

TRANSZONAL COMMUNITY TYPES

The desert riparian community comprises vegetation in local desert washes that is not dramatically different in growth-form from that of the surrounding desert shrub communities. Plants are comparable, but usually occur in greater density in the desert riparian community. As a result, it is commonly recognized as an extra-zonal, rather than distinct community. Like its Sonoran counterpart, it is scattered like fingers through the landscape. Roadsides appear quite similar to these washes due to the concentration of water from run-off from the pavement surface. Soils are usually silty to sandy, but become quite rocky at the higher elevations. As would be expected, increased subsurface water may be available, allowing the greater densities. Mesquite (Prosopis glandulosa), catclaw (Acacia greggii), desert willow (Chrilopsis linearis), cheeseweed (Hymenoclea salsola), and rabbitbrush (Chrysothamnus paniculatus), along with some isolated salt-cedar (Tamarix sp.) give this community a slightly more developed appearance. On portions of the Colorado River upstream from Lake Mead, ocotillo (Fouquieria splendens) can be found along the edges of this community, which also extends into major laterals such as Whitmore and Andrus canyons.

Faunal species are also quite similar to those of the surrounding communities, the major difference being that they occur more frequently in this community. The sidewinder is a common inhabitat, and desert wood rats are frequently present in this environment because it offers more abundant food and cover sources than do the adjoining communities. These factors also undoubtedly

account for the greater density of desert birdlife found here. Feral burros and domestic cattle utilize this ecosystem. Desert riparian communities are found in all of the proposed wilderness units.

AQUATIC VEGETATION TYPES

The aquatic community complex contains four distinct communities in the recreation area; however, only two of these, the stream riparian community and desert spring community fall within the proposed wilderness units.

The first, the stream community, is limited to the muddy waters of the Colorado River upstream from Lake Mead, and Muddy and Virgin Rivers, as well as to the clear or relatively non-silted lower reaches of Las Vegas Wash and the Colorado River below Hoover and Davis Dams. Extreme variability in the quality of waters exists. Turbidity is a major consideration. Water depths, stream widths, and current vary greatly from the narrow, shallow, rapid waters of lower portions of the Las Vegas Wash through the wide, shallow, and generally slow flow of the Muddy River to the swift, larger, and cooler waters of the Colorado River. Numerous endemic non-game and non-native fishes currently inhabit the community. Carp and channel catfish predominate in muddy waters of the Colorado River. The introduced striped bass and rainbow trout provide a major sport-fishing resource in river waters below Davis Dam. Beaver, muskrat, and soft-shelled turtle are reportedly found in the Virgin, Muddy, and Colorado Rivers below Davis Dam. The river otter is reportedly rare in this community.

No stream communities are included within the proposed wilderness because all are open to the recreational use of motorboats and related motorized vehicles.

Evidence concerning the desert spring community indicates that a larger number of desert spring flowed historically than at the present. A major concentration of active springs occurs on each side of the Colorado River between Hoover Dam and Willow Beach. Petroglyphs, commonly found at localities formerly used by Indians, and/or certain vegetation, indicating greater availability of moisture during earlier periods, tend to indicate prehistoric man's active efforts to manage the meager water supply of this arid country.

Many springs are thermal, and water temperatures vary slightly on an annual basis. Various aquatic plant species can be expected and the peripheries of springs may have a number of sedges (Scirpus, spp.), brushes (Juncus, spp.), and cattails (Typha angustifolia). Cottonwoods (Populus fremontii), mesquite (Prosopis glandulosa), desert willow (Chilopsis linearis), and saltcedar (Tamarix sp.) may

also be found in these mesic soils. Formerly active springs or water encatchments provided greater water availability indicated by the presence of cottonwoods, mesquite, scrub oak (Quercus turbinella), and wild grape (Vitus arizonicus). Saltgrass (Distichlis spicata) and some salt tolerant shrubs (Atriplex and Pluchea) may occur in moist environments such as those found at Rogers Springs north of the Echo Bay development.

Although use of local springs as watering sites by resident and migrant birds may not be as great as during pre-impoundment days, the springs continue to provide considerable shelter for the park's bird populations. Mice, small rodents, and amphibians use these communities to a considerable degree.

Desert springs are found in proposed Wilderness Units 1 and 7, and Potential Wilderness Units F, G, J, and K.

The lake community also contains several variables that could warrant further sophistication of the basic ecological classification. Water clarity, temperature, limnological features and similar considerations have resulted in known variable distributions of game fishes. Upper-most portions of Lake Mead above Iceberg Canyon provide conditions especially favorable to channel catfish. Proceeding downlake, large-mouth bass population increase, particularly in the lower portions of the lake. Scattered concentration centers of black crappie, bluegill, and carp are known to exist near Saddle Island, Ramshead Island, and developed marinas.

Striped bass were initially planted in this lake during 1969; but very large rainbow trout were caught prior to 1969 in the Hualapai Wash area and occasionally in Las Vegas Bay.

Lake Mohave, with its cold upstream water temperatures, 54 degrees to 65 degrees Fahrenheit, has long been known for its excellent fishing. Rainbow trout are planted by the Fish and Wildlife Service directly into Lake Mohave from the Willow Beach Hatchery. The State of Nevada formerly supplemented the Federal Government's efforts and more recently the State of Arizona has been providing state-reared rainbow trout, silver salmon, cutthroat trout, and kokanee salmon. Late each spring, the transition zone between colder uplake and warmer downlake waters provides an extremely vivid rust-to-near-orange display of algae in the Chalk Cliff to Monkey Cove area. A noticeable change in game-fish composition is associated with this six-mile transition zone. As one proceeds downlake into generally slower moving and warmer waters, a transition can be expected from an integrated catch to fewer trout and an increasing number of largemouth bass. However, this significant fact is less noticeable today due to increased downlake stocking of rainbow trout and other salmonids since completion of the Willow Beach Hatchery in 1962-63.

Native species formerly found in both lakes, including the humpback sucker and the bonytail chub, may still be present.

Use of this community by birds is significant. Western and eared grebes, several gulls, egrets, herons, several species of shorebirds, bald and golden eagles, white pelicans, and ospreys are only a few of the 244 bird species reported from all biotic communities of the recreation area. Although not all use the lake community for the basic necessities of food, shelter, or escape cover, most are closely associated to this, the stream riparian, and stream communities.

The beaver and raccoon found in Lake Mohave are the sole mammalian representatives of this community, although river otter and muskrat may possibly use this lake and Lake Mead. Soft-shelled turtle occurs in Lake Mohave.

The stream riparian community is found in Las Vegas Wash, and the Muddy, Virgin, and Colorado Rivers where limited areas of sedimentary delta-like riparian ecosystems, are generally typified by deep siltsands and relatively high organic content and moisture. In addition, limited and scattered shoreline environments of both lakes Mead and Mohave display similar characteristics when lake elevation fluctuations are minimized. Formerly, severe annual fluctuations of 40 to 70 vertical feet occurred on Lake Mead, which precluded the development of shoreline vegetation. Recently, moderate annual high and low water fluctuations of 20 to 35 feet have enabled a stream riparian community to develop along several portions of the lake. In addition to these riparian associations, other conditions exist which support this community. Narrow mesic canyons of the Newberry Mountains contain intermittent flows which support riparian vegetation. Cottonwood (Populus fremontii), willow (Salix gooddingii), desert willow (Chilopsis linearis), cattail (Typha angustifolia), arrowweed (Pluchea sericea), mesquite (Prosopis glandulosa), and the non-native salt-cedar (Tamarix sp.) may exist at both riparian conditions. Sedges (Scirpus olneyi and robusta), rush (Juncus montividentis), monkey flower (Mimulus gattatus), and grasses (Bromus, Polypogon, and Phragmites) can also be found within this community.

Amphibians are represented by the spade foot toad, the red spotted toad, the introduced bullfrog, and possibly by the tiger salamander introduced in larval form as fishing bait. Birds and mammals are also characteristic of surrounding communities. Skunks, beavers, desert bighorns, feral burros, domestic cattle, and coyotes are particularly noticeable in this ecosystem.

Stream riparian vegetation occurs locally in tributary canyons of the Colorado River in proposed Wilderness Units 18 and 19, but is absent in other units.

3. Colorado Plateau Province

a. Geology

The Colorado Plateau Province portion of the recreation area lies east of the Grand Wash Cliffs and north of the Grand Canyon of the Colorado River. It encompasses the southern portion of the Shivwits Plateau, the extreme southwestern portion of the Uinkaret Plateau, and a small inner-canyon platform known as the Esplanade.

Most of the upland plateau is a gently rolling but dissected tableland. A number of lava-capped buttes rise above the general landscape culminating in Mount Dellenbaugh, which at an elevation of 6,990 feet is the highest point in the recreation area. The southern edge of the plateau drops away precipitously toward the Colorado River.

The sedimentary rock column in this section of the Colorado Plateau includes strata ranging in age from Lower Cambrian to Middle Triassic and overlies a basement complex of Precambrian gneiss. The sedimentary formations are nearly horizontal and generally have a dip of less than 5° to the east and northeast.

Most of the faults in this section of the recreation area are high-angle and dip-slip, with some having a scissors movement. Structurally and topographically, this portion of the Colorado Plateau contrasts sharply with the deep structural basins, block-faulted ranges, and tilted blocks of strata which are characteristic of the Basin and Range Province to the west.

This portion of the Colorado Plateau provides a classic example of landscape development in nearly horizontal sedimentary rocks in different resistance to erosion under semi-arid conditions. In general the landscape is composed of five classes of features: (1) steep to vertical-walled canyons developed in resistant strata, (2) beveled surfaces of the inner canyon of the Colorado River where the massive crystalline rocks of the Precambrian and lower Paleozoic carbonate strata have a uniform resistance to erosion, (3) stripped surfaces which are developed on a particularly resistant stratum overlain by less resistant strata, typified by the Kaibab Uplands and the Esplanade, (4) scarps, either erosional or tectonic, such as the Hurricane and Grand Wash Cliffs, and (5) surfaces of aggradation, most notably represented by lava flows, talus, and colluvial slopes.

b. Biotic Communities

ZONAL COMMUNITY TYPES

The Colorado Plateau exhibits four distinct zonal communities and one transzonal community in Units 19, 23, 24, and 25. The

sagebrush community consists mainly of sagebrush (Artemisia tridentata), and rabbitbrush (Chrysothamnus nauseosus), and dominates large portions of the Shivwits Plateau. Other plants frequently associated with these indicators are matchweed (Gutierrezia sarothrae), rubberweed (Hymenoxys richardsonii), cliffrose (Cowania mexicana), Apache plume (Fallugia paradoxa), and in limestone outcrops, century plant (Agave utahensis).

Soils are relatively thicker in this community than in others of this province. Reddish-brown clays and fine silts predominate in ancient Shivwits lakebeds. Porosity is relatively good, except on the depressed areas. The Shivwits Plateau receives snow in a quantity comparable to that in the surrounding pinyon/juniper community. Animal use is limited to native wildlife such as rodents, coyotes, foxes, badgers, cottontails, and blacktail jackrabbits.

Domestic cattle graze extensively on the Shivwits Plateau. Corrals, water tanks, and similar grazing developments are extensive on the plateau, thereby retarding or prohibiting natural vegetative succession. Feral burros are not thought to be especially common in this community. Their use of the Grand Canyon biotic communities is heaviest near the Colorado River, progressively decreasing as the elevation increases.

The most abundant community on the Shivwits Plateau, the pinyon/juniper association extends from Snap Point east to Andrus Canyon. Although pinyon pine (Pinus monophylla) and the Utah juniper (Juniperus osteosperma) are the dominant plants, ponderosa pine (Pinus ponderosa) and the big sagebrush (Artemisia tridentata) stands are scattered throughout this community along major drainage patterns. Therefore, portions of this association may vary considerably, with the typical woodland merging into a forest association of ponderosa pine or an extremely sparse stand of juniper with a dense understory of big sagebrush. Other plants frequently found in this community are Gambel oak (Quercus gambelii), gooseberry (Ribes cereum), squawbush (Rhus trilobata), snowberry (Symphoricarpus longiflorus), and feabane (Erigeron divergens).

The pinyon/juniper and sagebrush communities comprise the major areas used for cattle grazing. The history of past overgrazing on Arizona Strip lands is well known. Mule deer, wild turkey, coyote, badger, pack rat, gopher, field mouse, cottontail, and blacktail jackrabbit, Gambel's quail, redshafted flicker, raven, scrub jay, Oregon junco, white breasted nuthatch, rattlesnakes, and several lizards are some of the resident and transient wildlife.

Colder temperatures and slightly greater precipitation in this community are due to high elevation.

TRANSZONAL COMMUNITY TYPES

Although more extensive areas of the oak woodland are located adjacent to the recreation area (Mt. Trumbell and Oak Grove Hill), some isolated stands occur in areas of limited exposure on the Shivwits Plateau. Soils are extremely shallow, rocky and well drained as the result of the steep, 20 percent slopes on which this association is usually found. Interzonal differences have been noticed: southerly exposures support a sparse stand of Gambel oak (Quercus gambelii) with an impenetrable understory of manzanita (Arctostaphylos pungens), while northern exposures are more diverse supporting in addition to Gambel oak; the New Mexico locust (Robinia neomexicana), ponderosa and pinyon pine, Utah juniper, barberry (Berberis fremontii), and chokecherry (Prunus virginiana).

The exposures in both communities differ dramatically from the generally flat terrain of surrounding lands. Domestic cattle pass through and feed upon this colorful vegetative complex.

Independent of the major zones of vegetation, the sheer cliffs, or vertical portions of the province, are numerous and form rather contiguous barriers between the three primary elevation levels of this portion of the spectacular Grand Canyon--the river, the Sanup Plateau, and the Shivwits Plateau. Soils, vegetation, and wildlife are generally rare in this area. The sole exception is the many caves that have been and continue to be utilized by several species of bats and possibly small rodents. Unsuccessful commercial exploitation of the famous bat or guano mine, located approximately 20 miles above Pierce Ferry, has included developments costing about \$740,000 and construction of extensive cross-canyon cables and cable towers. Bighorn sheep are known to be transient through limited portions of this community, where access occurs to and from lower Basin and Range slopes and communities of the Colorado Plateau province.

Two desert scrub communities, the blackbrush community and the creosotebush community--are dominant over wide areas at lower elevations in the Colorado Plateau province of the park. These communities are similar in structure to those described in the section on the Basin and Range Province; they occur in both Unit 18 and Unit 19.

4. Endangered or Threatened Species

A number of plant taxa are currently proposed for endangered or threatened status by the U.S. Fish and Wildlife Service (Federal Register, June 16, 1978) and by the Smithsonian Institution (1975). Those species occurring in or near the recreation area are:

<u>Arabis gracilipes</u>	Threatened
<u>Arctomecon californica</u> *	Endangered
<u>Astragalus geyeri</u> var. <u>triquetrus</u> *	Endangered
<u>Astragalus lentiginosus</u> var. <u>ambiguus</u>	Threatened
<u>Camissonia parryi</u>	Threatened
<u>Camissonia specuicola</u> var. <u>hesperia</u>	Threatened
<u>Coryphantha vivipara</u> var. <u>rosea</u>	Threatened
<u>Crossosoma parviflora</u>	Threatened
<u>Cryptantha insolita</u>	Endangered
<u>Encelia frutescens</u> var. <u>resinosa</u>	Threatened
<u>Eriogonum viscidulum</u> *	Endangered
<u>Linanthus arenicola</u>	Threatened
<u>Opuntia basilaris</u> var. <u>treleasei</u>	Threatened
<u>Opuntia whippleyi</u> var. <u>multigeniculata</u>	Threatened
<u>Penstemon bicolor</u> ssp. <u>roseus</u>	Threatened
<u>Phacelia anelsoni</u>	Threatened
<u>Rosa stela</u>	Threatened

*Arctomecon californica, Astragalus geyeri var. triquetrus, and Eriogonum viscidulum have been declared "Critically endangered" by a workshop on threatened and endangered plants sponsored by the Fish and Wildlife Service, Forest Service, Bureau of Land Management and the Northern Nevada Native Plant Society in February 1978.

The following animals have been observed within Lake Mead National Recreation Area, and are on the United States List of Endangered and Threatened Wildlife and Plants, as maintained by the Secretary of the Interior:

Brown Pelican	<u>Pelecanus occidentalis</u>	Endangered
Bald Eagle	<u>Haliaeetus leucocephalus</u>	Endangered
Peregrine Falcon	<u>Falco peregrinus anatum</u>	Endangered
Pahranagat Bonytail	<u>Gila robusta jordan</u>	Endangered
Devils Hole Pupfish	<u>Cyprinodon diabolis</u>	Endangered
Humpback Chub	<u>Gila cypha</u>	Endangered
Colorado River Squawfish	<u>Ptychocheilus lucius</u>	Endangered

The Devils Hole Pupfish are maintained in a refugium, fed by waters of the recreation area.

5. Environmental Quality

a. Air Quality

The air quality of the Lake Mead region is generally good, especially in the Colorado Plateau portion of the recreation area.

However, air quality degradation is increasingly evident throughout the lower elevations of the Basin and Range Province. Air pollutants drain into the basin of the Colorado River from all directions, and are of particular concern during periods of atmospheric inversion.

The major existing source of air pollutants within the recreation area is the coal-fired Fort Mohave Steam Generating Plant of Southern California Edison Company located about two miles from the extreme southern park boundary in Clark County, Nevada. Pollution generated in the Las Vegas Basin west of the recreation area drains into the Boulder Basin along Las Vegas Wash. The automobile is the major generator of this pollution; however, the Henderson Industrial Park seven miles to the west of the recreation area provides a local source of industrial pollution from chemicals, metal processing, and cement production. Other regional sources of pollution include the coal-fired power plant at Moapa, Nevada, about 15 miles northwest of the Overton Arm of Lake Mead; several gypsum and some mineral processing plants north of the Boulder Basin; dust from areas where the desert environment has been disturbed; and under appropriate atmospheric conditions, photochemical oxidants from the Los Angeles Basin.

Background air quality data are not available for the recreation area at the present time, and the impact of pollution upon the ambient air quality cannot be quantified. However, a 1973 emissions inventory for Clark County, Nevada carried out by the Air Pollution Control Division of the District Board of Health of Clark County indicates that motor vehicles are the major contributors to air pollution in the county by accounting for 97 percent of the carbon monoxide, 81 percent of the hydrocarbons, and 52 percent of the nitrogen oxide emissions. Power plants discharge 89 percent of the sulfur dioxides and 22 percent of the total particulates. Mobile sources account for approximately 245,000 tons of pollutants in the air per year, power plants 83,000 tons, and industrial processes 56,000 tons.

b. Water Quality

Industrial wastes and biological effluents, all originating outside of the recreation area, are a concern of such magnitude that cooperative efforts of Federal, state, and local governments have been initiated to search for solutions to the problems of disposing and treating water pollutants. The University of Nevada at Las Vegas is currently under contract with Clark County to monitor water quality and determine the effects of discharging treated sewage into Lake Mead. Las Vegas Wash alone contributes over 200,000 tons of various salts to the waters of the reservoir and sufficient organic material to create algal blooms in the lake.

c. Noise

Although there have been no noise level studies done in the regional area, various noise corridors are known to exist within the recreation area. The lake surface and the developed areas have elevated sound levels from motor boat, automobile, and associated recreational activities. Lake Mead Drive, the Northshore Road, and U.S. Highway 93 all carry heavy traffic volumes at various times, particularly on holidays and weekends.

Aside from light aircraft and scenic air travel over the recreation area, the reservoir areas and backcountry areas are traversed by major approach paths to McCarran International Airport south of Las Vegas. The region away from these noise corridors, the reservoirs, and developed areas is quiet. Although windy at times, there is little vegetation to even generate wind noise, and the silence is encompassing.

6. Probable Future Environment Without the Proposal

Without formal wilderness designation, the proposed wilderness units would continue to be managed as primitive backcountry areas for hiking and camping. The existing land uses described in Section A.4. of this chapter would probably continue with little increased intensity. However, special interest groups could more effectively apply pressure to rezone primitive backcountry areas for different or more intensive kinds of use. These different or more intensive uses would be more likely to affect the environmental integrity of the units than would wilderness use, and it would become progressively more difficult to preserve the unconfined primitive nature of these units as well as their atmosphere of solitude.

Without the legislative identification of wilderness as the primary purpose of these lands, some mineral leasing would undoubtedly occur in the future. There is little known likelihood for economically profitable mineral or fossil fuel deposits within any of the wilderness units. Therefore, mineral leasing would primarily cause surface disturbances associated with prospecting and mineral evaluation such as roads, drill holes, test pits, and temporary housing. All of these disturbances lay the imprint of man upon the land and would degrade the area's primitive qualities in an ever-increasing spiral.

Visitation to the areas proposed for wilderness is light, and not expected to increase dramatically in the near future whatever its land classification. However, if less than wilderness uses occur within these primitive areas, users seeking a wilderness experience will be forced further and further from established access points. As hikes to gain this experience become overnight or longer expeditions, there will be increased public pressure for more vehicle access corridors in this land of few water sources.

Without formal wilderness designation, the proposed wilderness units will be subject to administrative management decisions as to their best use, and these decisions may change more readily than when under the management mandates of the Wilderness Act of 1964. Management of the area, however, would potentially be more efficient and economical when not burdened by the restrictions of having to use the least damaging methods.

III. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A. ENVIRONMENTAL IMPACTS ON EXISTING LAND USE

Because of provisions in the enabling legislation for the continuation of various land uses in Lake Mead National Recreation Area, it is unlikely that the proposal will have substantial immediate effect on most existing uses of the essentially primitive lands proposed for wilderness designation. Restrictions on existing uses, where such uses are considered to be incompatible with preservation of an ecologically productive natural environment, are likely to be applied gradually as a result of management decisions. The potential short-term impacts of the wilderness designation on land use are therefore considerable, although quantification of those impacts at this time is not possible.

1. Mining

All areas with valid mining claims, mineral leases including those for oil and gas, outstanding mineral rights or reservation and about 3,500 acres of claims under adjudication, within the recreation area are being excluded from the proposal as wilderness areas. Thus, the proposed legislation will affect only mineral leasing of those resources which are, as yet, undiscovered on the 418,655 acres being proposed for wilderness, 55 percent, or approximately 816,920 acres, of the recreation area will remain open to application for mineral leasing.

If, as recommended, the legislation establishing wilderness at Lake Mead states that the primary purpose of the Lake Mead wilderness area is its preservation for use and enjoyment as wilderness, the effect will be to prohibit the exploitation of minerals, oil, and gas if they exist on wilderness units within the recreation area. In essence, this prohibition is in effect if the lands are placed in wilderness without this special provision because the Secretary's discretionary authority to grant leases is countered by the regulations he must issue under the structures of the Wilderness Act of 1964.

The adverse effects of the wilderness proposal on the 66,350 acres of private subsurface mineral rights should be negligible.

The most promising mineral areas within Lake Mead National Recreation Area have been intensively prospected over the years, and it is unlikely that any extensive mineral deposits remain undiscovered to be exploited in the future. The geologic structures which have been identified within the recreation area do not lend themselves to the accumulation of oil or gas sufficient for field production.

However, two oil and gas leases have been granted, and seven are under application, in the Cockscomb area northeast of proposed Wilderness Unit 18. To date, there has been no exploration or development activity on these leases.

Gold, copper, uranium, silver, sodium, tungsten, and manganese are the primary minerals which have been identified as having some potential for existing in commercial grades and amounts within the recreation area. No mineral discovery has been made on those lands on the Shivwits Plateau which are subject to Santa Fe Industries mineral reservations and repurchase rights and which are being proposed for potential wilderness. If economic deposits of minerals, or of oil and gas, do exist on lands given wilderness status, they will not be available for exploitation without future Congressional action, and would not contribute to the local, regional, or national economy. Such loss is unknown and unquantifiable. However, it is not believed to be significant as the areas have been prospected to no avail for many years.

2. Grazing

The proposed designation of wilderness will have no effect on current grazing operations because all roads, and stock tanks or water pockets requiring access by motorized vehicle for maintenance have been excluded from proposed wilderness units. However, livestock grazing will not be able to expand beyond the capability of current support facilities and access unless this expansion has been approved prior to the date of wilderness designation. If it has been approved, the area of expansion will not be proposed for wilderness. Because of the lack of water and productive range in the proposed wilderness units, as well as the limited access and rugged topography, the potential expansion of grazing operations into these areas is very limited and the impact of excluding future support activities from wilderness areas will have a minor impact upon the local livestock industry.

3. Reclamation

Sufficient land areas for potential reclamation activities and facilities have been excluded from wilderness to insure that the effects of wilderness designation on reclamation activities will be minor. After a three-year study, the Bureau of Reclamation has identified no potential future needs in areas being proposed for wilderness. Thus, the wilderness proposal will have no direct or immediate effect on the use of lands for powerlines, water supply, flood control, power generation, or other legitimate reclamation purposes.

If, as proposed, the Congressional Committee reports on the wilderness legislation state that the primary purpose of the designated areas is wilderness, it would serve to indicate that reclamation or

power purposes would not be permitted as they would be incompatible with wilderness.

In any event, such Federal reclamation proposals would require environmental impact statements and be subject to public scrutiny. It is likely that public pressure would be brought to bear on future reclamation projects which would threaten the esthetic or ecological integrity of a wilderness area. It is doubtful then, that wilderness areas would be proposed for reclamation purposes unless no other feasible alternative was available.

4. Recreation

Recreational use of Lake Mead National Recreation Area is largely confined to the two lakes and their lakeside recreational developments. Use of the backcountry has never been measured quantitatively, but it is known to be light. Establishing wilderness within the recreation area will focus public attention on these areas and may result in some small increase in backcountry use.

The wilderness proposal will not cause any roadways to be blocked or closed in the recreation area; therefore, it will have no effect upon such current backcountry recreational uses as hunting, hiking, camping, and rockhounding, which often require vehicular access.

The wilderness value of Lake Mead National Recreation Area's backcountry has heretofore been unpublicized, and as a result it is largely unrecognized. The spectacular wilderness country of the Sanup Plateau, the Colorado Gorge and some of the mountainous areas bordering Lake Mead, is unappreciated by the public at large. The establishment of wilderness in this park will focus public attention on these areas and may result in increased backcountry use, especially during the spring and fall when the temperatures favor such use. If the 37-hour work-week and the continuous operation of school systems become widespread, public leisure time will be more available and demands on recreational facilities may intensify, particularly during the spring and autumn, when commitments to jobs and school-year routines have traditionally limited vacation time during these seasons. Increased use would require increase management to maintain the same level of environmental quality. Because of the vastness of this park, the remoteness of some of its proposed wilderness areas and the existence of a management staff oriented almost entirely to active recreation on and near the lakes, repair and prevention of environmental abuse due to increased use will be difficult to implement. It is obvious that in a park with more than 4 million recreational visitors a year significant impairment of wilderness solitude would occur if even a small percentage decided to use the backcountry. At present, the adverse effects of recreational use on the backcountry are due

primarily to the sights and sounds of active recreation on the lakes (principally recreational boating and water skiing) and the developed areas (camping, overnight lodging areas, picnicking) that are visible from many wilderness locations. If many more visitors were induced to use the wilderness, these remote effects would be augmented by more direct impacts, which might include trampling of vegetation, littering, destruction or damage to archeological resources, increased noise, disturbance of wildlife habitat, and reduced availability of solitude. Controls of backcountry use may eventually be necessary to preserve the wilderness environment the visitor seeks to enjoy.

Regardless of the potentially adverse effects of increased back-country use as a result of wilderness designation, the social and psychological benefits of providing for wilderness use as an alternative type of recreational use in this national recreation area are substantial.

Existing recreational uses of lands adjacent to wilderness areas can have a significant effect on the quality of the wilderness experience. The noise from powerboats, power-rafts, and land vehicles will be apparent in many units, particularly with $\frac{1}{4}$ mile of roads and waters used for boating. All wilderness units border such features and it will, therefore, be impossible for the wilderness user to isolate himself from the sounds of motorized vehicles in all parts of the wilderness areas. However, most of the wilderness units contain very rugged terrain, which tends to provide considerable insulation from both the sound and sight of recreational use on nearby lands. In a desert environment where vegetative cover is sparse and sight distances are great, natural topographic features provide the best buffer from nearby uses that are incompatible with the perpetuation of an atmosphere of wilderness solitude.

Wilderness areas established in the canyons of Units 21 would be particularly subject to esthetic degradation from facilities that might someday be established on the upland plateau flats, which have been excluded from wilderness. The wilderness canyons are deeply incised into the Sanup Plateau uplands and extend to the escarpment at the lip of the above Shivwits Plateau. The canyons and upland flats form an interdigitating mosaic of wilderness and non-wilderness that is potentially incompatible with respect to the kinds of use and development permitted in the two areas. The use of overlooks, roads, trails, and related facilities might be perceptible from various locations in the wilderness areas, thereby lowering the quality of this outstanding wilderness environment. No such facilities along the rim are being contemplated in current park plans.

Wilderness use is a form of recreation which complements the other, more intensive recreational opportunities available within the national recreation area. In the harsh desert away from the reservoirs, a day-use philosophy seems appropriate for most wilderness users. Roads allow access to the vicinity of wilderness units and provide access for two types of users: the recreational vehicle enthusiast and the backpacker. Coves, inlets, and shore-line provide access to the wilderness by those using watercraft on Lake Mead or Lake Mohave.

Many of the wilderness units border developed areas, such as Temple Bar, where large numbers of retired persons spend a good share of the winter. Wilderness in close proximity to these areas allows for a special desert experience during the cool winter months when it is possible to comfortably explore this historic and picturesque area. Wilderness designation will assure that this opportunity will continue to be available for all to enjoy. It is this wilderness background that enriches the experience of all those who use the recreation area.

B. IMPACTS ON NATURAL RESOURCES

The designation of wilderness units within Lake Mead National Recreation Area should result in long-term protection for natural resources which other land use classifications would not because it would be a legislative classification and not subject to local administrative changes.

Wilderness designation will affect the management of wildlife and vegetation by restricting the use of motorized equipment or methods which might be the most effective but are not the minimal techniques required in wilderness areas. The control of feral animals and various exotic plants (such as Saltcedar along shorelines or washes), which threaten the ecological stability of some areas may be rendered less efficient under the strictures of wilderness status. Regulations designed to control the use of the areas and protect the natural environment may also be made more difficult to enforce.

Several important botanical resources would also be given the protection of wilderness status. Geological resources preserved within the proposed wilderness unit include portions of the brightly colored sandstone of the Aztec Formation (Units 10, 11, and 12) and flatbedded gypsum of the Big Gyp Beds (Unit 14).

The prevalence of forest insects and diseases and the consumption of natural resources by fire will be unaffected by the proposed action. Endemic infestations and wildfires which threaten important resources or which threaten to impact adjacent private and public lands can be controlled under the provisions of the Wilderness Act,

subject only to any Secretarial limitations imposed. Wilderness designation does not preclude resource management practices which allow natural occurrences of wildfire or insects to have their natural effects on the ecosystem. Fires are very infrequent because of lack of adequate fuel, but do occasionally occur, particularly in the more densely vegetated areas of the Colorado Plateau section of this park (Unit 21, comprising 38.4 percent of the total proposed wilderness area). This section is the least accessible part of the park and, therefore, the one in which wildfires are most difficult to control at an early stage. Restrictions on the construction of roads into Wilderness Unit 21 might impede the movement of fire-fighting equipment.

If backcountry use increases because of wilderness designation, there will be a small, but proportionate, increase in the trampling of vegetation, destruction of wildlife habitat, disturbance of wildlife, compaction of soils, and, especially in the upland portions of Units 23, 24, and 25, the chance of man-caused fires. Because of the vastness of this recreation area, the remoteness of many of the proposed wilderness units, and the existence of a management staff which must be oriented primarily to the active recreation on and near the reservoirs, the repair and prevention of environmental abuse from increased use will be difficult.

Wilderness designation of the River Mountain unit will provide an additional level of protection for the habitat of the River Mountain herd as a new growing herd not a remnant herd of bighorn living there. Five other units proposed for wilderness status contain prime habitat for desert bighorn (Units 5, 7, 11, 19, 20, 24, and 25). Protection of bighorn habitat through wilderness status should contribute to the stability of the populations as they are wilderness species and tend to remain away from human activities. The wilderness areas will also provide suitable habitat for the Gila monster (Basin and Range section in lowlands only), desert tortoise (Basin and Range section in lowlands only), prairie falcon (ubiquitous), and peregrine falcon (ubiquitous)--all of which are either rare, threatened, or endangered.

A grove of about 800 yellow palo verde trees lies southeast of Fire Mountain in potential Wilderness Unit C, and represents the northernmost extent of the range of this species. If this unit is rejected by the Bureau of Reclamation as a pumped-storage site, this northern outpost of palo verde trees will be given the added protection of being in an area reserved for wilderness use.

Vegetation would benefit from wilderness designation only to the extent that wilderness designation prevents their destruction due to vehicle use, construction activities, and trampling by man.

If prospecting, mining, and their support facilities were to be permitted in those areas proposed for wilderness, it could result in the disruption of wildlife habitat, destruction of vegetation, soil compaction, erosion, air pollution, and the introduction of contaminants into the Colorado River and the reservoirs. The proposed action will have the effect of eliminating the potential for these impacts to occur.

Wilderness designation will greatly facilitate compliance with Executive Order 11752, which requires adherence to air- and water-quality standards in accordance with the Clean Air Act of 1970, the Federal Water Pollution Control Act of 1970, and applicable state standards and regulations. Noise level standards and controls will be more acceptable on and over lands designated as wilderness, as will prohibiting off-road vehicle use. Air, water, and noise pollution created by the construction of additional developments, or those concomitant with leasing activities, in natural areas of the recreation area will be eliminated by the preclusion of these developments under a wilderness designation. However, the reclamation of wilderness lands already disturbed by these activities will be more difficult and expensive to accomplish.

C. IMPACTS ON CULTURAL RESOURCES

If backcountry use increases because of wilderness designation, there will be a minor increase in the deliberate and accidental loss or destruction of historic and archeological resources within the recreation area. Patrols designed to protect these resources may be made more difficult or expensive because of the prohibition of motorized vehicles in wilderness areas. Research and excavation of historic or archeological sites will also be made more difficult and expensive for the same reason. Any increase in backcountry use due to wilderness designation is most likely to be concentrated in the Newberry Mountains, Pinto Valley and the Shivwits Plateau. It is unlikely that any such increase would equal 0.1 percent of the total park visitation within the foreseeable future.

Wilderness designation will prevent the accidental destruction of historic or archeological resources from the construction activities related to the potential recreational facilities which could be developed in the wilderness units. It will also protect them from similar disturbances related to the search for and development of mineral, or oil and gas, resources, and those related to reclamation projects.

Restrictions relating to wilderness designation might also impair the efficient conduct of potential future research on natural or archeological resources. However, except in the remote canyons of the Sanup Plateau, all wilderness locations are within a few miles of

a jeep trail or maintained road, so impairment due to difficult access should be minor. Prohibition of permanent research facilities in wilderness areas could restrict research operations, particularly in the Sanup area, in the event such facilities became necessary. These research facilities could in many cases be located immediately adjacent to the wilderness units, in order to minimize inconvenience to researchers. If wilderness limits the ability of scientists to acquire knowledge about the park's resources, management of those resources would have to be done on the basis of more limited factual information, thereby increasing the probability of erroneous decisions.

D. IMPACTS ON SOCIOECONOMIC FACTORS

The economic and potential inflationary effects of the wilderness recommendation for Lake Mead National Recreation Area have been evaluated in accordance with Executive Order 11821. The magnitude of any inflationary effect will be minor and no inflation impact statement will be prepared for the proposal.

The social and psychological values of providing for wilderness use as an alternative form of recreational activity can be a substantial, but quite unquantifiable effect. The reclamation special provision will make an additional 96,000 acres of otherwise qualifying land available for wilderness, and connect otherwise disparate units, in exchange for potential reclamation uses which are unforeseen and unexpected by the Bureau of Reclamation at this time.

The legislative statement of the primary purpose of preservation for wilderness enjoyment and use will have little effect on the potential profit from the extraction of mineral resources, as the area has been well prospected for many years and does not appear to have any promising mineral production potential. Rather, it will clarify the ambiguity that would be created if an area were open to mineral leasing yet constrained by wilderness legislation.

Any economic impacts associated with the wilderness proposal are likely to be negative with respect to the present status of primitive lands. Any economic benefits due to increased backcountry use would probably be offset by losses due to increased restrictions on consumptive uses of natural resources as covered in Section 111-A. Most of these restrictions are not implicit in the wilderness proposal, but rather would result from public pressure against such uses following designation of wilderness units.

E. IMPACTS ON WILDERNESS VALUES

The lands being considered for wilderness designation in this proposal are all being managed as natural areas at the present time. There is a value difference implied between the two types of designation and the effects of wilderness status will be to magnify and embellish certain impacts and seemingly create others from this value difference.

Domestic livestock grazing within the units proposed for wilderness are obviously non-native animals in the area due to the presence of man and affect the natural environment by altering the species composition of plant communities through selective foraging, trampling of vegetation and soils, overgrazing selective areas, creating increases in the rate of erosion, and fouling watering areas with excrement. Some backcountry users would accept the presence of grazing livestock and their effects in a primitive area, but have the esthetics and sensibilities of their wilderness experience degraded by the presence of these animals in an area designated as free from the works and activities of man.

By eliminating the potential for mineral, oil and gas, recreation facilities, roads and other developments, wilderness designation will have the effect of also eliminating the potential for degradation of wilderness values from the sight, sound, litter, and other disturbances of these activities and facilities.

At the present time, the effects of recreational use on the backcountry of the proposed wilderness units are from the sight and sound of active recreation in the developed areas, on the reservoirs, and on the Colorado River. All wilderness values will be diluted along those boundary lines which are adjacent to heavily used non-wilderness areas, along roadways, and adjacent to heavily used portions of the reservoirs. The urban setting of Boulder City and Las Vegas can be seen from the River Mountains, and to the south and east of the Newberry Mountains the developments at Davis Dam, the Mohave Power Plant, Katherine Landing, and Bullhead City can be seen from Unit 1. The contrast between untrammelled primitive lands and those where man's influence dominates the scene is obvious from sections of all of the proposed wilderness units in the Basin and Range sections of the recreation area. For some backcountry users, this contrast in land use will be of value in developing an appreciation of wilderness values. For other backcountry users, the contrast will be pervasive and degrade their experience.

The effects of influences from outside of the recreation area, such as chaining, animal poisoning, poaching, overgrazing, mining, pothunting, land disturbance, air and water degradation, and the like, all have more significance when pertaining to adjacent wilderness lands, rather than to adjacent lands which remain in a primitive

or natural classification. The physical effects are identical, but the subjective effects are greater because of the greater subjective value placed on lands designated as wilderness.

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

There are no specific actions included within the wilderness proposal for the mitigation of impacts created by the proposed action. However, mitigation of effects upon resources of the recreation area, both known and potential, and upon current and projected land use needs, was a constant consideration in the formulation of the proposed action.

Legislative language is proposed to establish the primary purpose of the wilderness as preservation for the use and enjoyment of the area as wilderness. This will eliminate the inherent conflict between the Secretary of the Interior's existing authority to grant leases for mineral or oil and gas development, yet formulate regulations which would essentially prohibit the development on such leases to protect wilderness values. To mitigate against any potential economic loss created by this clarification of intent by Congress, no lands having any form of oil and gas or mineral reservation on them were proposed for wilderness.

To mitigate against any impacts upon grazing activities within the recreation area, all road corridors and adjacent structures required to support current grazing, and approved expansions, have been excluded from wilderness units.

To prevent any foreclosure on the energy needs of the nation, the National Park Service awaited the completion of a three-year study by the Bureau of Reclamation within the confines of Lake Mead National Recreation Area. All areas determined by the Bureau to have potential for energy production, and the transmission of that energy, were recommended as potential wilderness until final studies by the Bureau resulted in final selections. A special provision is provided in the proposal to allow the Bureau of Reclamation to complete the Southern Nevada water project tunnels and for proper upkeep and maintenance. This will mitigate the impacts of placing the River Mountains in Wilderness.

Sites with potential as future recreation development areas have been selected and have not been placed in wilderness units. This mitigates against closing off lands within the recreation area for such purposes should the future need arise.

The backcountry use of the wilderness units will be carefully monitored. At the first signs that resource deterioration is occurring because of increased use, a use carrying capacity will be implemented to eliminate it. Routine management procedures should be adequate to mitigate most, but not all, of the adverse effects of visitor use of the wilderness.

To mitigate the impact of the wilderness proposal upon wildlife management programs concerning the desert bighorn, a special provision is being proposed to allow for the placement of wildlife watering devices within units designated as wilderness.

The cultural resources contained in the backcountry areas of Lake Mead National Recreation Area are largely unknown. To mitigate against any impact upon the known cultural resources caused by the creation of wilderness units within the recreation area, all properties under evaluation by the Western Regional Office of the National Park Service will be afforded the protection outlined in the "Procedures for the Protection of Historic and Cultural Properties" of the Advisory Council on Historic Preservation (36 CFR Part 800). Until comprehensive Executive Order 11593 surveys have been completed in the wilderness units, all cultural sites as they are discovered will be given the same protection under the order. Executive Order 11593 cultural resource surveys will be made prior to relinquishing administration of any potential wilderness units to the Bureau of Reclamation as selected pumped-storage sites, and the salvage provisions of P. L. 93-291 implemented.

To mitigate against locking up large tracts of land, a sufficient number of access roads are retained by the natural resources management plan into the recreation area and are not in conflict with any of the proposed wilderness units.

The Wilderness Act of 1964 (Appendix B) contains provisions for non-wilderness permitted actions to mitigate against restrictions which might otherwise endanger human life, health, safety, and property. It also provides for controls to mitigate the potential loss of natural resources from fire, insects, or diseases.

**v . ANY ADVERSE EFFECTS THAT CANNOT BE AVOIDED
SHOULD THE PROPOSAL BE IMPLEMENTED**

Use of the wilderness for backcountry recreation will result in some unavoidable disturbance of vegetation and wildlife habitat; some risk of vandalism to archeological resources; some littering; and some pollution associated with a lack of sanitary facilities.

Unless later reversed by Congress, the loss of 418,655 acres of land for exploitation for its potential oil and gas, and mineral resources will be unavoidable.

Because of the restrictions upon the types of access into wilderness areas, there will be a certain cost in time, money, and effectiveness in research, management, and administration of wilderness areas.

Any increased use of the backcountry because of wilderness designation will create some cultural resource loss despite compliance surveys, salvage work, and enforcement efforts.

It is unavoidable that some wilderness users will have a lessened wilderness experience because of livestock grazing, and in some portions of those sections of the recreation area in the Basin and Range, from the sight and possibly the sound of man and man's works.

Livestock grazing will not be able to expand beyond the ability of current support facilities and access if such expansion has not been approved at the date of this legislation.

Without further Congressional action, approximately 96,000 acres of land withdrawn for potential future reclamation projects will be lost to such activities.

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The designation of wilderness areas in Lake Mead National Recreation Area commits the National Park Service to a long-term management policy for those lands which will perpetuate an atmosphere of wilderness and solitude, as well as facilitate the protection of ecological stability and integrity of cultural resources. The short-term exploitation of natural resources will be curtailed from expansion in the case of grazing, and eliminated in the case of oil, gas, and mineral extraction, and reclamation activities, in order to preserve wilderness values. Short-term exploitation of these commodities would still be possible in those portions of the recreation area being proposed under a non-wilderness classification if other conditions permit.

**VII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS
OF RESOURCES THAT WOULD BE INVOLVED IN THE
PROPOSED ACTION SHOULD IT BE IMPLEMENTED**

The change in status from an administratively designated primitive area to a Congressionally designated wilderness does not cause any irreversible or irretrievable commitment of resources. There will be no resource extraction, destruction of archeological or historic sites, elimination of endangered species habitat or significant change in land use. The resources within the wilderness units will remain intact as long as wilderness designation is in effect. Potential recreational benefits from the development of extensive facilities for active recreation, potential benefits from oil, gas, or mineral extraction, and potential, but unforeseen, reclamation projects, potential benefits from the expansion of the area's grazing operations, are only irretrievably lost as long as wilderness designation is in effect.

VIII. ALTERNATIVES TO THE PROPOSED ACTION

A. NO ACTION

The alternative of no action would consist of a conscious decision to continue the present management policies, trends, and conditions in the recreation area. The no action alternative would entail several potentially significant environmental impacts. If no wilderness is designated, the proposed wilderness area would be managed as primitive backcountry, which is essentially the same use and management specified under the Wilderness Act of 1964. Administrative reclassification of existing primitive lands would, however, be possible. Such reclassification would allow for more intensive recreational use and development, thereby jeopardizing the atmosphere of wilderness solitude that these lands now possess. Construction of new roads and the resultant incursion of vehicles in existing primitive areas could take place, subject only to administrative approval by the National Park Service and the Department of the Interior. Increasing levels of noise, air pollution, and disruption of wildlife behavior patterns would result.

Failure to establish legislative wilderness areas would permit greater flexibility in management techniques, which could result in reduced management costs. These techniques might include use of off-road patrol vehicles and motorized maintenance equipment, as well as the construction of more elaborate and efficient waste-disposal systems than would be permitted in wilderness areas. The efficient conduct of research in remote backcountry areas--particularly archeological, historic, and paleontological surveys--would not be impeded by restrictions on the use of vehicles and various types of equipment and the establishment of relatively permanent research facilities.

The national spotlight is now, and is likely to continue to be, focused on Congressionally designated wilderness areas. Actions taking place within primitive areas do not seem as important as those in wilderness areas. Therefore, should no action occur, and an incompatible Federal action be proposed on the primitive areas within the recreation area, it would be difficult to raise public opinion on controversial issues and to gain full public participation in the decision-making process.

No plans for recreational developments have been formulated for any of the primitive areas being proposed for wilderness designation. However, under the alternative of no action such development would not be precluded. The construction of additional recreation facilities in existing primitive areas in response to increased demand could result in increased damage to vegetation from off-road vehicle use; increased erosion; reduction in the opportunities for solitude due to increased visitor density; reduction in suitable habitat for desert

bighorn and other wildlife species; and a gradual elimination of the opportunity to provide a multiple-use recreation area which accommodates an unconfined backcountry experience along with intensive and active forms of recreation.

If increased visitation is a by-product of the publicity surrounding the establishment of an area as wilderness, then it is possible that a course of no action would maintain current levels of use for many years. If this is true, then no action would mean that all forms of visitor impact upon the environment of the backcountry would not increase rapidly in the next few years. Some areas of critical habitat or cultural fragility have a carrying capacity which approaches zero. A course of no action might provide more protection to these resources if it does not result in increased visitation or undue publicity, but only over the short run.

A course of no action would allow leasing for gas, oil, and minerals within primitive areas of the recreation area. Such leasing results in access roads being constructed into previously primitive areas, surface disturbance from drilling and testing activities, and could eventually lead to full-scale mining or drilling operations if an economic resource is found.

It is unlikely that failure to take the proposed action would result in any immediate alteration in the existing use and management of the proposed wilderness units. Most of the areas are rugged and nearly inaccessible except on foot. The areas have a decided lack of water and are, in general, unsuitable for either substantial recreational or consumptive use of natural resources. The monetary and energy expenditure needed to develop these areas for other than primitive recreation is so great as to make them infeasible, especially for short-term exploitation. If mineral extraction or reclamation purposes become so compelling as to be in the national interest to exploit the resources of these units, Congress could authorize such land use if the lands have been designated as wilderness or if a course of no action has been followed. However, a course of no action could allow for authorization of such use at a lower echelon of Government.

B. LESS WILDERNESS DESIGNATION

It is self-evident that the number of possible boundary permutations within a recreation area as large as Lake Mead is practically limitless. This revised wilderness proposal recommended by the National Park Service is essentially a maximum wilderness proposal within the constraints of reclamation requirements for the area. All lands which qualify, or which can be made to qualify through management actions, have been recommended for wilderness status; lands which do not qualify have not been recommended. A "more" wilderness

alternative would, therefore, include lands where man's presence and his works preclude such designation.

A less wilderness alternative consists of the proposal minus one or more of the units proposed for wilderness which contain elements which remove them from the more puristic core wilderness of the recreation area. None of man's intrusions into these areas disqualify them from wilderness status, and all of the intrusions can be controlled or eliminated through management action if it is so desired.

The primary impacts of less wilderness would be to break the remaining wilderness status lands into lesser blocks lacking in continuous integrity, and to allow for non-wilderness developments which might penetrate deep into or between wilderness status lands. The impacts of including areas within wilderness which could potentially be dropped to form a less-wilderness alternative have already been covered in the Impacts of the Proposed Action section of this statement. The impacts of excluding one or more of these areas from the wilderness proposal will parallel those of the previous no action alternative for each area deleted from the proposal with the quantitative effect varying primarily with the number of acres involved.

A less wilderness variation could be formed by deleting from the proposal the 100,275 acres of potential wilderness additions (Units A, and C-K) which the Bureau of Reclamation has identified as potential locations for reclamation facilities, and the entirety of the 6,975 acres of Unit 6 in the River Mountains, which are cut by an infrequently used tunnel maintenance road. Those units which are not destined for reclamation purposes could be proposed for wilderness at a later date. Such a lesser wilderness would allow the Bureau of Reclamation a free hand in the methods utilized in evaluating the various sites for their specific purposes. The minor protection afforded these areas by identifying them as having wilderness quality would be removed, and surface disturbance of the natural environment would be more easily permitted.

Another less wilderness variation would be to delete all units where man's activities outside the unit could be observed. This would be a wilderness proposal in the purest sense. It would result in the elimination of all but a few thousand acres in the Basin and Range portion of the park, reduced portions of Units 18 and 19, and almost all of Units 23, 24, and 25 on the Shivwits Plateau. The total purest wilderness proposal would probably amount to less than 100,000 acres.

Several areas being proposed for wilderness classification could be considered because of past uses which have affected their wilderness character. Other units could be considered for deletion because of potential management needs, or because wilderness classification will

probably not change the present or future use of the area. Many of these units are crossed by old roads or jeep trails which could facilitate recreational use on Lake Mohave or Lake Mead. Also, some of these units would be suitable for the development of facilities to permit diversification of recreational options in the park.

Deletion of these units from the wilderness proposal would further reduce the opportunity for an unconfined type of wilderness experience by cutting large wilderness units into disjunct parts. The economic impacts of deleting these units from the wilderness proposal would be minor because exploitation of natural resources for reclamation purposes, grazing, prospecting, mining, oil and gas extraction, and related activities would not be prevented.

A brief description of the individual areas which were most seriously considered for deletion from the wilderness proposal are as follows:

1. River Mountains

The 6,975-acre River Mountain unit is the home of the largest and healthiest herd of desert bighorn in the recreation area, and possibly in the Southwest. This herd of about 250 animals has developed because of the water supply available from the Boulder Beach sewage system. In 1963, a survey showed the presence of only 68 desert bighorn in the River Mountains, but by 1973 the herd had grown to more than 250. The herd has been used as a source for re-stocking desert bighorn in Zion National Park because the herd appears to be disease and parasite free.

The River Mountains are used as an environmental-education area under the National Environmental Education program because of its ready accessibility from the Las Vegas Valley, the urban areas of which are visible from many locations in the tract. Boulder Beach and associated developments on the western end of Lake Mead's Boulder Basin are visible from much of the eastern part of this area. To many, these esthetic intrusions would have an adverse impact on the wilderness experience.

The area is closed to grazing and has never been subject to significant grazing pressure because of the extremely rugged terrain. Wilderness deletion, therefore, would have a negligible beneficial economic impact on private interest holding grazing leases in this area. The tract is also closed to hunting by both State and Federal regulation. There are no mineral leases, patented claims, or known valid existing claims present in the area. Limited prospecting has been done historically, but evidence of disturbance from this activity is negligible. Beneficial economic impacts on private interests due to fewer restrictions on prospecting and mining should be minor if this area were deleted from the wilderness proposal.

The close proximity of this area to the park's largest recreational development at Boulder Beach would tend to degrade the wilderness experience because the sites and sounds of intensive recreational uses are perceptible from most of the tract. The adverse impacts of such activities on the ability of the wilderness user to find pure wilderness solitude tends to make the area unsuitable for wilderness designation in spite of its substantial value as bighorn habitat.

2. Overton Unit

This 24,000 acre tract of land was considered for deletion from the wilderness proposal. The unit is largely roadless, except for two gravel roads that provide access to the lake and are used primarily by hunters, fishermen, and beach users. Grazing pressure is light to moderate, and habitat value to wildlife is slight. The area contains no mining leases or privately owned mineral rights.

The proposed Overton Arm Addition contains no outstanding natural, historical, or archeological resources that might benefit from the additional protection wilderness status would afford.

The land slopes toward the lake, which is visible from nearly any location in the tract. Recreation use of the lake is locally heavy, particularly in the Echo Bay region north of proposed Wilderness Unit 12. The sounds generated by such use would be apparent to users of this area and would have adverse impacts on the wilderness experience. For this reason, the environment of this region is less conducive to a wilderness experience for many years.

C. ADDITIONAL SPECIAL PROVISIONS

Three additional special provisions have been suggested for consideration which provide variations to the basic wilderness proposal.

1. Cultural Resource Management

This special provision would provide for occasional and temporary access into wilderness units by aircraft and motorized vehicles. This access would only be permitted for the management purposes of completing Executive Order 11593 cultural resource inventories, and for implementing mitigating or protective actions. Access would be permitted until all inventories and corrective actions are completed. Such access of motorized vehicles or aircraft would be permitted only on established roadways, vehicle trails, and landing areas, and such access would only be permitted after review and concurrence from the Superintendent of the recreation area and the Director of the Western Region of the National Park Service.

This special provision would reduce the costs and time to produce such surveys and protective actions required to implement Executive Order 11593. The effect upon survey and preservation crews would be less arduous and time-consuming access to survey and cultural sites.

However, the effect of such a special provision would also be to keep the control of wilderness values in local administrative hands instead of giving it full wilderness protection under the Wilderness Act of 1964. Similar special provisions could be developed for the management needs in resource protection, interpretation, law enforcement, and so on.

The term of this special provision would depend upon the availability of personnel and funding over the years to complete such surveys and preservation projects. Therefore, the special provision could stay in effect for an indeterminate number of years. During this time, the wilderness areas would continue to be used in a non-wilderness manner by motorized vehicles. Abandoned roadways and vehicle trails would not return to a natural state as rapidly as they would in an untraveled wilderness state. Wilderness users would have their wilderness experience intruded upon by the presence and activity of motorized vehicles.

The Wilderness Act of 1964 provides specifically for the management of wilderness through the use of the least tool. In some extreme cases, an aircraft or motorized vehicle may prove to be that least tool provided for in the Act. As access in this case is provided for in the Act it was not felt necessary to include this special provision in the proposal so that the more routine problems of access into wilderness areas for management purposes could be accommodated.

2. Reclamation Withdrawals

This special provision would provide for specific and definitive action by Congress which would eliminate any ambiguity in the interpretation of Congressional intent. The reclamation provision in the proposal recommends that the legislation which designates wilderness in Lake Mead National Recreation Area state that the primary purpose of such wilderness units be for their preservation and use as wilderness until such time as other uses are permitted by subsequent legislative action as provided for in Section 3(e) of the Wilderness Act of 1964, P.L. 88-577. The proposal's reclamation provision does not recommend that previous reclamation withdrawals be revoked, only that the prior primary purpose of these lands withdrawn for reclamation purposes now be given a secondary purpose to that of Congressionally designated wilderness.

As recognized by the Solicitor (see Appendix E) reclamation withdrawals must be revoked on lands before or simultaneously with their wilderness designation by Congress. To accommodate this opinion, and that of those members of the public who would prefer a more definitive expression of intent from Congress concerning these lands, the following special provision has been developed.

"It is recommended that the legislation which designates wilderness in Lake Mead National Recreation Area contain a special provision which revokes, or directs the Secretary of the Interior to revoke, all reclamation withdrawals and reservations which may be in effect on lands designated as wilderness. If Congress so directs the Secretary, his authority to make such revocations is contained in Section 3 of the Act of June 17, 1902, 32 Stat. 388, as amended and supplemented, 43 U.S. C. Section 416 (1964). It is further recommended that this special provision contain language which proscribes future reclamation activities on lands which have been designated as wilderness, unless Congress gives its specific consent to these activities. "

This special provision has the effect of allowing wilderness use to supercede reclamation use on lands withdrawn but not scheduled for reclamation use. Wilderness units will have greater continuity under this special provision than if the 96,000 acres of lands subject to reclamation withdrawals retained their primary reclamation use. This reclamation provision will also prevent wilderness areas from being traversed by such reclamation projects as power transmission lines, and protect all natural resources in each unit from further disturbances. Another effect of this special provision would be to allow for wilderness designation without causing differences in legal opinions.

Such specific language would have the effect of exchanging potential reclamation purposes for specific wilderness uses and clearly give the land the Congressional protection of the Wilderness Act of 1964. Other than this definitive clarity, there would be no other effects beyond those anticipated from the proposals present special provision on reclamation withdrawals.

3. Mining

This special provision would provide for specific and definitive action by Congress which would eliminate any ambiguity in the interpretation of Congressional intent toward mineral exploitation on wilderness designated lands in Lake Mead National Recreation Area. The mining provision in the proposal recommends that the legislation which designates wilderness in Lake Mead National Recreation Area state that the primary purpose of such wilderness units be for their preservation and use as wilderness until such time as other uses are permitted by subsequent legislative action as provided for in

Section 3(e) of the Wilderness Act of 1964, P.L. 88-577. The proposal's mining provision does not recommend that future mining leases be prohibited on lands designated as wilderness, nor would it prohibit such use if it were secondary and not in conflict with wilderness preservation and use.

By their very nature, the works and activities of man in a mineral extraction activity are in direct conflict with wilderness values. It is difficult to visualize the Secretarial limitations, conditions, or regulations which could serve to protect wilderness and natural values and still remain reasonable and not unduly restrictive on mining or oil field development. With this ambiguity in mind, it is doubtful if the Secretary would grant mineral, or oil and gas leases on Congressionally designated wilderness lands.

To eliminate this ambiguity and to accommodate those members of the public who prefer a more definitive expression of intent from Congress concerning mineral extraction from wilderness lands, the following special provision has been developed.

"It is recommended that the legislation which designates wilderness in Lake Mead National Recreation Area contain a special provision which terminates the Secretary's authority to grant leases for the extraction of minerals, oil and gas from lands designated as wilderness. Additionally, Congress could provide, subject to just compensation when constitutionally required, for the termination of all existing lease rights. "

Such specific language would have the effect of exchanging unknown potential mineral extraction for specific wilderness preservation and use; clearly giving the land the protection of the Wilderness Act of 1964. Other than this definitive clarity, which would prevent differences in legal interpretation, there would be no other effects beyond those anticipated from the proposal's present provision on mineral exploration and extraction.

IX. CONSULTATION AND COORDINATION WITH OTHERS

A. CONSULTATION AND COORDINATION IN THE DEVELOPMENT OF THE PROPOSAL AND IN THE PREPARATION OF THE DRAFT ENVIRONMENTAL STATEMENT

Consultation and coordination on wilderness recommendations have been underway for the Lake Mead National Recreation Area since 1973 (see Appendix F). The information gathered during this period has been considered in developing the current preliminary wilderness proposal as it has been affected by the Grand Canyon Enlargement Act of 1975 and by the Bureau of Reclamation study, Reclamation Potentials Within the Lake Mead National Recreation Area, of January 1977, which identifies potential development sites to meet the energy needs of the Southwest (see Appendix A).

I. Consultation with the Public

a. Field Trips for Consultation with Local Ranchers

Field trips were made on March 2-4, and April 21-22, 1977, in the Colorado Plateau section to make on-the-ground inspections of grazed areas which require developments and access routes to conduct grazing operations. The wilderness proposal, as it would affect grazing, was outlined with two of the allottees and arrangements were made with the Lake Mead staff to contact the remaining two allottees with the same information. Tanks, improved water pockets, pipelines, and access routes were identified and located through personal contacts and field checks.

b. Wilderness Pre-Planning Workshops

The National Park Service, with the Bureau of Reclamation participating, held pre-planning public workshops in Phoenix, Arizona on February 14, 1977; Los Angeles, California on February 15; Las Vegas, Nevada on February 16; Kingman, Arizona on February 17; and St. George, Utah on February 18. The approximate attendance at each meeting was: Phoenix - 14, Los Angeles - 2, Las Vegas - 14, Kingman - 10, and St. George - 0.

The purpose of the meetings was to identify public concerns and desires for wilderness designations within the reduced boundary of Lake Mead National Recreation Area and to describe the Bureau of Reclamation proposals to meet the energy needs of the Southwest.

The following table lists ideas grouped according to concerns expressed by meeting participants. This data was used along with basic resource data to develop alternatives and their impacts for

wilderness planning at Lake Mead National Recreation Area. Also provided is a review of organizations and interest groups represented.

LAKE MEAD NATIONAL RECREATION AREA WORKSHOPS
February 1977

WILDERNESS CONCERNS

A. 1974 Wilderness Plan

- 1. Grand Canyon section - should have the maximum amount of wilderness with a phasing out of all uses contrary to wilderness management.**
- 2. Original 1974 wilderness plan was acceptable and the amount of wilderness should not be decreased, but rather increased.**
- 3. NPS 1974 recommendation should be considered as the minimum amount of wilderness - all those areas then recommended should be recommended now.**
- 4. Wildlife and flora might be threatened by vehicular usage and so such use should be totally eliminated.**
- 5. The Kelly Point road should be closed at Fire Camp.**
- 6. All areas noncontiguous with the recreation area should be wilderness.**
- 7. All areas with bighorn habitat should be in wilderness.**
- 8. Existing facilities are okay in noncontiguous areas.**

B. Bureau of Reclamation Studies

- 1. There should be an acceleration of Bureau of Reclamation studies and during the interim none of the areas under consideration for reclamation purposes should be excluded from wilderness designation.**
- 2. Pumped storage: If a site is on wilderness quality land, there should be a wilderness recommendation regardless of this potential or speculation.**
- 3. Wilderness should be ranked above energy needs.**
- 4. Wilderness in Lake Mead NRA is more important than future electrical energy.**

5. Wilderness designation need not be delayed because of incompleting Bureau of Reclamation studies.
6. Wilderness should be ranked above future Reclamation projects.
7. There should be no mechanical access into any potential wilderness areas.
8. Wilderness should be at water's edge, even if it prevents motorized water access.
9. Wilderness boundaries should be drawn at high-water line.
10. Wilderness designation should extend as far water-ward as practical to patrol.

C. Existing Recreation Activities

1. Boating activities and beach activities should not be altered.
2. Current uses of land should be preserved.
3. Wilderness is a negative factor because it further limits recreational usage.
4. No more roads.
5. Current use by motorized vehicles should be considered and those areas that have established traditional use should be excluded from wilderness designation.
6. Use adjacent to the lake is not compatible with a wilderness classification. Perhaps a one or two mile land area around the lake perimeter should be excluded from wilderness consideration.
7. We must consider which of existing uses must be revised and which retained.
8. Hunting should be allowed, but should not block wilderness designation.
9. All watercraft should have access to all parts of the shoreline.

10. Wilderness designation should prohibit current traditional vehicular use.
11. "Very" primitive roads should not preclude wilderness designation.
12. Some coves should be proposed for wilderness-uses, such as sailboat use.

D. Grazing and Mining

1. Grazing in wilderness areas should be restricted for domestic livestock, and feral livestock eliminated.
2. All areas impacted by mining should be studied and those that qualify should be recommended for wilderness.
3. Wilderness would serve fewer people than mining areas in terms of overall economics and usage.
4. Grazing and mining as practiced now are not incompatible with the concept of wilderness, however, at some time in the future these practices might have to be revised.

E. Carrying Capacities

1. NPS should develop carrying capacity for wilderness areas and the park's management plan should be based upon it.
2. There should be a length of stay limit for individuals using wilderness.
3. How will enforcement of the wilderness use limitations be accomplished?

F. Other

1. Eliminate non-federal lands to allow maximum solid wilderness blocks.
2. Wilderness law is an old law, and perhaps it creates an abundant bureaucracy.
3. Proper maintenance is necessary even if it requires additional facilities for maintenance personnel.

4. Each area suggested has only a capacity for marginal wilderness use because they are adjacent to or involved in heavy usage.
5. What happens on adjacent lands shouldn't affect wilderness designation in Lake Mead NRA.
6. Wilderness should be approached from the viewpoint of minimum destruction.
7. More lead time for meetings, 45+ days.

LAKE MEAD NATIONAL RECREATION AREA WORKSHOPS
February 1977

ORGANIZATION MEMBERSHIP OR REPRESENTATION

Arizona Game and Fish Department
Arizona Mountaineering Club
Arizonans for Safe Energy
Arizona Office of Economic Planning & Development
Arizona Outdoor Recreation Coordinating Commission
Arizona Parks and Recreation Association
Arizona State University
Arizona Wilderness Study Committee (2 participants)
AWWW Inc.
Bureau of Land Management
Bureau of Reclamation
Friends of the Earth (3 participants)
Groups for Wilderness
Mohave County Parks Department
New Mexico Wilderness Study Committee (2 participants)
Sierra Club (4 participants)
Southern Arizona Hiking Club
Tempe Bar Home Owners Association (2 participants)
U.S. Army Corps of Engineers
U.S. Coast Guard
Wilderness Society (2 participants)

2. Coordination with Other Agencies

a. Bureau of Reclamation

September 22, 1975

The Superintendent and members of his staff held a meeting with Bureau of Reclamation staff persons to discuss proposed development sites for pumped-back storage, and Hoover Dam modifications.

September 8, 1976

Attended by Wilderness Coordinator, Denver Service Center (DSC), persons of Lake Mead staff and Lower Colorado Regional Office staff at Reclamation offices in Boulder City. Issues discussed included Hoover Dam expansion, pumped-back-storage sites, transmission lines, Southern Nevada Water Project, 300-foot setbacks from high-water line of Lakes Mohave and Mead, future augmentation, alternate Highway 93 Colorado River crossing, and the Kingman Water Project. These issues were discussed in terms of the 1974 Preliminary Lake Mead Wilderness Recommendation.

February 7 & 8, 1977

Field examinations were made by air of proposed Reclamation pumped-back-storage sites by DSC representatives and Max Haegle of the Bureau of Reclamation. In addition, an on-the-ground examination of the Pinto Valley pumped-storage site was conducted with Ben Radicki of the Bureau accompanying the participants mentioned above.

March 7-10, 1977

An environmental coordinator from the Boulder City Office participated in the development of the preliminary wilderness proposal and development of the outline for the draft environmental statement. The work session was held at Denver, Colorado in the DSC and attended by Lake Mead National Recreation Area staff members and by DSC planning team members. Public input was analyzed from the pre-planning workshops and considered while developing the preliminary wilderness proposal.

b. Bureau of Land Management

January 19, 1977

Members of the DSC team were in St. George, Utah to gather basic data and to inform the Bureau's Arizona Strip staff members of the wilderness workshops to be held in St. George during February.

February 18, 1977

A recreation specialist with the Bureau was briefed by members of the wilderness planning team in St. George, Utah on the NPS approach to designating wilderness. The suggestion was made that the NPS should contact individual ranchers concerning wilderness

designation of any lands within the Lake Mead National Recreation Area. Plans were made for a field trip in March to accomplish this objective. Wilderness study areas as required by the new BLM Organic Act were generally identified.

March 2, 1977

The Bureau provided the planning team with a map showing all known tanks, corrals, improved water pockets, and other improvements necessary to sustain grazing. This information was used by the planning team on subsequent trips to the Shivwits Plateau and Andrus, Parashant, and Whitmore Canyons.

April 1977

Contacts were made by the park staff with the Nevada BLM offices to verify locations of wilderness study areas required by their Organic Act.

c. Southern Nevada Water System

February 24, 1978

The Manager and the maintenance superintendent of the Las Vegas Valley Water District, Southern Nevada Water System, were contacted concerning access and maintenance requirements to the River Mountains (Unit 6) by the planning team captain and members of the park staff.

B. COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT

Comments will be requested from the following:

- Advisory Council on Historic Preservation
- Department of Agriculture
 - Forest Service
 - Soil Conservation Service
- Department of Defense
 - Army Corps of Engineers
- Department of Energy
- Department of the Interior
 - Bureau of Indian Affairs
 - Bureau of Land Management
 - Bureau of Mines
 - Bureau of Outdoor Recreation
 - Bureau of Reclamation
 - Fish and Wildlife Service
 - Geological Survey
- Department of Transportation
 - Coast Guard
 - Federal Aviation Administration

**Environmental Protection Agency
Federal Power Commission**

**Arizona State Clearinghouse
Arizona State Historic Preservation Officer
Nevada State Clearinghouse
Nevada State Historic Preservation Officer
Metropolitan Clearinghouse, Las Vegas
Utah State Historic Preservation Officer**

**Hualapai: Tribal Council
Southern Nevada Water System**

Informational copies will be sent to the following:

**Coconino County, Planning Commission
Colorado River Commission
Mohave County Parks Department
Mohave County Planning and Zoning Commission**

**City Manager, Kingman, Arizona
Mayor, Boulder City, Nevada
Mayor, Henderson, Nevada
Mayor, Las Vegas, Nevada
Mayor, North Las Vegas, Nevada
Mayor, St. George, Utah**

**Advisory Commission of Arizona Environment
Aircraft Owners and Pilots Association
Arizona Conservation Council
Arizona Desert Bighorn Sheep Society, Inc.
Arizona Friends of the Earth
Arizona-Nevada Academy of Science
Arizona Parks and Recreation Association
Arizona Wilderness Study Committee
Arizona Wildlife Federation
Arizona Wildlife Society
Arizonans for Quality Environment
California Four-Wheel-Drive Association
Colorado Plateau Environmental Advisory Board
Colorado River Wildlife Council
Conservation Foundation
Desert Protection Council
Federation of Western Outdoor Clubs
Lahontan Audubon Society
Museum of Northern Arizona
National Audubon Society
National Parks and Conservation Association
National Parks Foundation**

**National Wildlife Federation
Nature Conservancy
Nevada Open Space Council
Sierra Club, Southwest Office
Southern Arizona Hiking Club
Southern Nevada Resources Action Council
Tempe Bar Home Owners Association
Wilderness Society**

A P P E N D I X E S

- A. U.S. BUREAU OF RECLAMATION STUDY, JANUARY 1977**
- B. THE WILDERNESS ACT OF 1964**
- C. WILDERNESS PRESERVATION AND MANAGEMENT
POLICIES OF THE NATIONAL PARK SERVICE**
- D. FIELD SOLICITOR'S MEMORANDUM. - WILDERNESS
DESIGNATION ON RECLAMATION WITHDRAWALS**
- E. RESULTS OF THE PUBLIC HEARINGS AND WRITTEN
RESPONSES TO THE PRELIMINARY WILDERNESS STUDY,
NOVEMBER 1973**
- F. WILDERNESS TEAM PERSONNEL**

APPENDIX A

RECLAMATION STUDY, JANUARY 1977

On September 30, 1974 the Assistant Commissioner of the Bureau of Reclamation directed the Regional Director, Boulder City, Nevada, to firm up investigation potentials in the area and to work with the National Park Service in the development of future wilderness proposals.

The report was conducted in compliance with those directions and lists Reclamation energy potentials located within the Lake Mead National Recreation Area. Because of the change in land status due to the enlargement of the Grand Canyon National Park, the report did not specifically address itself to Reclamation potentials on lands which were formerly within the Lake Mead National Recreation Area.

Lake Mead was formed by the impoundment of water behind Hoover Dam, which was authorized by the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057) for the purpose of controlling floods, improving navigation and regulating the flow of the Colorado River, providing for storage and delivery of stored waters for reclamation of public lands, and for the generation of electrical energy. In recognition of the national significance of the recreation area which developed around Lake Mead, Congress passed the Lake Mead National Recreation Area Act of October 8, 1964 (78 Stat. 1039), describing the functions and activities to be exercised by the Secretary of the Interior in his administration of the area.

In addition to those mentioned above, other potential uses of the land for energy development have been recognized for a number of years. For

this reason, the language of the legislation of October **1964** establishing Lake Mead National Recreation Area states that the establishment of boundaries of the Lake Mead National Recreation Area

. . . shall not affect adversely any valid rights in the area, nor shall it affect the validity of withdrawals heretofore made for reclamation or power purposes. All lands in the recreation area which have been withdrawn or acquired by the United States for reclamation purposes shall remain subject to the primary use thereof for reclamation and power purposes so long as they are withdrawn or needed for such purposes.

The Bureau of Reclamation supported the designation of wilderness units in the Lake Mead National Recreation Area in **1974** and does not oppose wilderness areas at locations where Reclamation has no foreseeable long-range possibilities to use the land.

The multiuse concept of this area was designed originally for flood control, water storage, electrical energy, and recreation.

In future years, it is possible that Reclamation will require areas adjacent to Lake Mead and Lake Mohave in connection with proposals such as pumped-storage reservoirs or projects wherein water is imported to the Colorado River from another region.

Summary of Investigations

Pumped Storage

Pumped storage appears to have one of the most promising potentials for power development in Lake Mead National Recreation Area. In such an operation, off-peak electrical energy would be used to lift water into a storage reservoir for use during on-peak load periods. The criteria for pumped-storage sites can be generalized as:

1. Must be close to a lake or a constant water supply
2. Must have a suitable geological structure for impounding water
3. Provide the overall requirements for an integrated system.

The number of potential pumped-storage sites is relatively small within Lake Mead National Recreation Area, and it would appear, from initial examinations, that most sites could be used without appreciably reducing the overall wilderness area objectives. Six such potential energy sites have been located and are identified on the preliminary wilderness plan map. They are: Pinto Valley on Lake Mead, and Indian Rapids, Fenlon Bend, Mohave, Fire Mountain, and Newberry Mountains, all on Lake Mohave.

Hoover Powerplant Modifications

Pursuant to Public Law **94-156** (**89** Stat. 825), the Secretary of the Interior has been authorized to engage in feasibility investigations of the Boulder Canyon Project Modifications. A preliminary report, published in April **1973**, indicated that it was technically and economically feasible to increase the generating capacity at Hoover Powerplant, but

that the extent of development would be limited by availability of water, agreement among affected parties, and the need to preserve established scenic and recreational qualities.

Transmission Corridors

In conjunction with these potential hydroelectric resources, a review of transmission requirements was undertaken to determine the need for additional transmission line rights-of-way. With the exception of the Pinto Valley pumped-storage site, it appears that most transmission requirements could be satisfied by construction of new transmission lines in corridors adjacent to existing high-voltage transmission lines. The Pinto Valley site would require the establishment of a new corridor across the recreation area.

This concept is in keeping with a study published by the Bureau of Land Management in July **1975** entitled "The Need for a National System of Transportation and Utility Corridors."

This study revealed that to minimize ecological and environmental impacts and the proliferation of rights-of-way on Federal land, as well as developing and distributing much-needed new energy sources, planning corridors appeared to be the most optimum action to take despite some obvious shortcomings. The report recommended that Federal agencies be directed to identify and reserve across Federal lands a national system of planning corridors, which are suitable for, and shall remain open to, future routing of transportation and utility rights-of-way.

The environmental criteria adhered to by the Department of the Interior and the Department of Agriculture require that properly sited established rights-of-way should be used where warranted for the location of additions to existing transmission facilities to minimize conflict with present and planned use of the land.

The existing transmission lines crossing the Lake Mead National Recreation Area and the potential corridor locations for the Pinto Valley site are indicated on the preliminary wilderness plan map.

300-Foot Setback from Lakes Mead and Mohave

Pursuant to an inter-Bureau agreement of October **13, 1936**, and clarified by Public Law **88-639** of October **8, 1964**, which defined the location of the Lake Mead National Recreation Area boundary and the responsibilities for its administration, the National Park Service and the Bureau of Reclamation have enjoyed unified land jurisdiction and shared joint administration over the Lake Mead National Recreation Area. Since construction of Hoover Dam, and enactment of P.L. 88-630, Reclamation has lifted its withdrawal in Arizona and Nevada on approximately 684,000 acres within the recreation area. Additional revocations are anticipated when Reclamation can accurately forecast its land requirements for use in connection with anticipated actions such as the importation of water, pumped-storage proposals and other reclamation activities. The revocations made since October **8, 1964**, were made on the basis of language in the Act which insures that land in the recreation area will remain subject to the primary uses for reclamation and power purposes as long as they are withdrawn or needed for such purposes.

The 1971 orders revoked reclamation withdrawals from the recreation area boundary to a point measured 300 feet horizontally back from the high-water line of Lakes Mead and Mohave. Wilderness designation along the shoreline of Lakes Mead and Mohave is proposed to coincide with the 300-foot horizontal setback from the high-water line. This strip of land along the lakeshores is used by the public for intensive recreation, and by the Bureau of Reclamation for reservoir maintenance activities and for water measurements, water quality evaluations, evaporation studies, control of natural slide areas, etc.

Southern Nevada Water Project - River Mountains Tunnel

The Southern Nevada Water Project delivers municipal and industrial water from Lake Mead to one of the fastest growing areas of the country. The area served includes Las Vegas, North Las Vegas, Henderson, Boulder City, and Nellis Air Force Base. The initial stage of the Project diverts from Lake Mead up to 132,000 acre-feet annually, which is part of Nevada's allocated share of Colorado River water.

Project works consist of intake facilities at Lake Mead, eight pumping plants, a 3.8-mile-long, 10-foot-diameter tunnel through River Mountains, and approximately 35 miles of pipeline.

Access must be maintained to all project facilities for operation and maintenance.

Future Additional Flows to the Colorado River

The Pacific Southwest Water Plan Report of January 1964 contains an estimate that water requirements in the Pacific Southwest will be about

20,000,000 acre-feet by the year 2000. This was based on a policy of no expansion in the irrigation economy.

Congress declared in the Colorado River Basin Project Act, Public Law 90-537, of September 1968, that meeting requirements of the Mexican Water Treaty from the Colorado River constitutes a national obligation which shall be the first priority of any increased river flow modification project. Congress also provided that for a period of ten years from the enactment of Public Law 90-537, the Secretary shall not undertake reconnaissance studies of any plan for the importation of water into the Colorado River Basin from other natural river drainage basins lying outside the seven Colorado River Basin states.

No studies of importation of water from outside the Colorado River Basin have been made since the publication of the PSWP report due to the restrictions placed on such studies by Congress. The 10-year restriction will terminate in October 1978, and it is assumed that appraisal studies could be initiated some time after that date. If additional flows are necessary to increase water in the Colorado River, Lake Mead would be the logical terminal reservoir.

Colorado River Highway Crossings

The crest of Hoover Dam is presently used as a link between Arizona and southern Nevada and is designated as U.S. Highway 93. Because of the increasing volume of both tourist and commercial traffic, compounded by the attraction that the dam presents, serious problems have developed at and in the vicinity of the dam. The problems relate both to the safety

of tourists and the dam and appurtenant structures. Because of this, an alternate route for through traffic is under consideration and should be excluded from the proposed wilderness area.

The alternate route, designated as a "Bridge Crossing One Mile Below Hoover Dam," would have four miles of access road in Nevada, and one mile of access road in Arizona. Adequate areas for interchanges and visitors' facilities would also be excluded. In addition, provisions may be made during the design of the bridge to provide for future communications, power, oil, gas, and water lines. Corridors for these future utilities as they diverge to and from the bridge must also be provided. Most of the route would be located within the area designated as the Reclamation Administrative Zone

Bureau of Reclamation Recommendations:

The Bureau recommended that the following areas be designated as POTENTIAL WILDERNESS ADDITIONS until such time as these areas can be eliminated from further consideration for reclamation developments.

Newberry Mountains - Contains potential pumped-storage sites.

Fire Mountain - Contains potential pumped-storage site.

Malpais Mesa and Fenlon Bend - Contains potential pumped-storage sites.

Roaring Rapids - Lands adjacent to Lake Mohave may be required in conjunction with Hoover Powerplant modifications.

Indian Rapids - Contains potential pumped-storage site. Lands adjacent to Lake Mohave may be required in conjunction with Hoover Powerplant modifications.

Pinto Valley - Contains potential pumped-storage site and associated transmission corridors.

Hoover Dam (Indian Rapids & Ringbolt Rapids) - Lands adjacent to Lake Mohave may be required in conjunction with possible Hoover Powerplant modifications.

Five of the above mentioned pumped-storage sites use Lake Mohave as a Lower Reservoir. The limited storage capability of Lake Mohave would preclude the development of all five sites even if all sites were tech-

nically and engineeringly feasible. Thus, until the most promising one or two sites can be identified, all potential pumped-storage sites should be designated as POTENTIAL WILDERNESS ADDITIONS.

All transmission corridors should be excluded from wilderness. These include the following:

- Four Corners-Eldorado 500-KV 1 line (1660' width).
- Mead-Liberty 345-KV line (1660' width),
- Pinto Valley pumped-storage site corridors (indefinite location) crossing through Arch Mountain unit and Petroglyph Wash unit.
- Mead-Davis 230-KV line (330' width).

Provision for corridors adjacent to existing transmission lines will provide for transmission requirements for the above mentioned power potentials, as well as other projects outside the Lake Mead National Recreation Area, which may be needed to meet projected loads in the Southwest area.

The Bureau of Reclamation believes that the following lands should be excluded from the wilderness proposal :

River Mountains Tunnel Corridor - Several features of the Southern Nevada Water Project (SNWP) are in the River Mountains to which access must be maintained, including the River Mountains Tunnel, SNWP telemetry systems, and associated utility lines and access

road. In addition, stage II construction of SNWP is now underway. The Bureau of Reclamation requires the following minimum corridor in Section 6, T. 22 S., R. 64 E., MDB&M to meet its responsibility concerning SNWP as it is now designed. The corridor would have a southern boundary lying 660 feet south of the present River Mountain Tunnel alignment. The northern boundary would begin at the mid-point of the east section line, proceed westward along the mid-section line until it is within 300 feet of the access road, and then maintain this distance from the road until the recreation area boundary is reached.

Hoover Dam - All lands within the Hoover Dam Reservation Boundary should be excluded from any wilderness or potential wilderness area.

AI 1 Areas - A 300-foot horizontal setback from high water elevation of 1,229 feet for Lake Mead, and 655 feet for Lake Mohave, should be omitted from proposed wilderness to provide for Reclamation activities along the shoreline.

A special provision is recommended in the legislation designating wilderness which identifies Reclamation's potential needs in the River Mountains, for construction and maintenance in the event of damage to the existing tunnel, for enlargement of the existing tunnel, or for an additional tunnel in the event any increased Colorado River flow modification projects are undertaken by Federal or State agencies. Either of these events could require additional land for construction or for spoil deposits in the same general area as the existing tunnel.

Future Reclamation Studies

Additional studies will be required by the Bureau of Reclamation before POTENTIAL WILDERNESS ADDITION areas can be designated as WILDERNESS AREAS.

Appraisal studies of the pumped-storage sites on Lakes Mead and Mohave will be required to determine which sites, if any, are suitable for development. The Bureau of Reclamation is currently involved in a study to identify and appraise ways to expand water-related energy production in the Western United States. This 15-month, Bureau-wide Western Energy Expansion Study will range from investigating potential new sources of hydroelectric power to considering possible integration of solar energy with hydropower, and includes several of the sites discussed in this report. This study will place in priority those which merit more detailed investigation and possible development.

The Bureau of Reclamation will pursue the possibility of conducting a peaking power study of the Lower Colorado Region. A similar study in the Upper Colorado Region, the Colorado River Basin, Power Peaking Capacity Feasibility Study was authorized by the Feasibility Studies Act of September 7, 1966 (Public Law 89-561, 80 Stat. 707), and is now underway. Although this study was limited to the Colorado River Basin in Arizona, Colorado, and Utah, and the eastern part of Bonneville Basin along the Wasatch Mountains in Utah, it would appear logical to engage in a similar study encompassing the Lower Colorado River Basin.

As mentioned earlier, Public Law 94-156 (89 Stat. 825), December 16, 1975, authorized the Secretary of the Interior to engage in feasibility investigations of Boulder Canyon Project Hoover Powerplant Modifications. These feasibility studies began in fiscal year 1977 (October 1976) and will extend for three years through fiscal year 1980. The purpose of these studies is to determine the extent to which the power peaking capability of Hoover Powerplant can be increased.

Also, in conjunction with the Boulder Canyon Project, the Bureau of Reclamation will continue to support a Colorado River Highway Crossing below Hoover Dam. Design standards have been tentatively agreed upon and the Bureau of Reclamation has provided feasibility designs and estimates to the Arizona and Nevada Highway Departments. Should major construction activities at Hoover Dam ensue as a result of the Hoover Powerplant Modifications feasibility studies, construction of a bypass will be almost mandatory, since existing traffic is at or near maximum capacity of the present roadway.

Timetable of studies is as follows:

Timetable of Studies

Boulder Canyon Project Modifications (Authorized)

Oct. 1, 1976	Initiate Modification Studies
Sep. 30, 1980	Complete Feasibility Studies

Pumped-Storage Studies (Scheduled)

FY- 1979	Initiate Studies
FY - 1982	Complete Studies
FY - 1983	Final Report to NPS

National Park Service Response

Bureau of Reclamation recommendations are applied as suggested for all wilderness units, with the exception of the maintenance access route over the River Mountains unit which the National Park Service believes should be considered for possible wilderness designation since it is used on an infrequent basis. The National Park Service recognizes the potential need for development within units classified as potential wilderness additions and strongly agrees with the Bureau that these areas should be reclassified as wilderness when they are no longer being considered for development as pumped-storage sites. The "Timetable of Studies," incorporated in the Reclamation Potentials Study, indicates that this information will not be available until fiscal year 1983. If funding allows, it is hoped that these studies could be completed before that date to permit designation of wilderness at the earliest opportunity. Discussions on each wilderness unit affected will follow in the section describing wilderness units.

APPENDIX B

WILDERNESS ACT

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Wilderness Act."

WILDERNESS SYSTEM ESTABLISHED—STATEMENT OF POLICY

SECTION 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area shall continue to be managed by the Department and agency having jurisdiction thereof immediately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

DEFINITION OF WILDERNESS

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

NATIONAL WILDERNESS PRESERVATION SYSTEM — EXTENT OF SYSTEM

SECTION 3. (a) All areas within the national forests classified at least 30 days before the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness," "wild," or "canoe" are hereby designated as wilderness areas. The Secretary of Agriculture shall —

(1) Within one year after the effective date of this Act, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: *Provided, however,* That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

Classification. (b) The Secretary of Agriculture shall, within ten years after the enactment of this Act, review, as to its suitability or non-suitability for preservation as wilderness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President.

Presidential recommendation to Congress. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other

reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act.

Congressional approval. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendations to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit; if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Notwithstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such area as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

Report to President. (c) Within ten years after the effective date of this Act the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within, the national wildlife refuges and game ranges, under his jurisdiction on the effective date of this Act and shall report to the President his recommendation as to the suitability or non-suitability of each such area or island for preservation as wilderness.

Presidential recommendation to Congress. The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act.

Congressional approval. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or other-

wise, be construed to lessen the present statutory authority of the Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

Suitability. (d) (1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness—

Publication in Federal Register. (A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

Hearings. (B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the area: *Provided*, That if the lands involved are located in more than one State, at least one hearing shall be held in each State in which a portion of the land lies;

(C) at least thirty days before the date of a hearing advise the Governor of each State and the governing board of each county, or in Alaska the borough, in which the lands are located, and Federal departments and agencies concerned, and invite such officials and Federal agencies to submit their views on the proposed action at the hearing or by no later than thirty days following the date of the hearing.

(2) Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with respect to any area shall be included with any recommendations to the President and to Congress with respect to such area.

Proposed modification. (e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the appropriate Secretary after public notice of such proposal and public hearing or hearings as provided in subsection (d) of this section. The proposed modification or adjustment shall then be recommended with map and description thereof to the President. The President shall advise the United States Senate and the House of Representatives of his recommendations with respect to such modification or adjustment and such recommendations shall become effective only in the same manner as provided for in subsections (b) and (c) of this section.

USE OF WILDERNESS AREAS

SECTION 4. (a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of national park and wildlife refuge systems are established and administered and—

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use Sustained-Yield Act of June 17, 1960 (74 Stat. 215).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Seventy-first Congress, July 10, 1930; 46 Stat. 1020), the Thye-Blatnik Act (Public Law 733, Eightieth Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-Andresen Act (Public Law 607, Eighty-fourth Congress, June 22, 1956; 70 Stat. 326), as applying to the Superior National Forest or the regulations of the Secretary of Agriculture.

(3) Nothing in this Act shall modify the statutory authority under which units of the national park system are created. Further, the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system in accordance with the Act of August 25, 1916, the statutory authority under which the area was created, or any other Act of Congress which might pertain to or affect such area, including, but not limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 412 et seq.); section 3(2) of the Federal Power Act (16 U.S.C. 796 (2)); and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461 et seq.).

(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

PROHIBITION OF CERTAIN USES

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable, in addition, such measures may be taken as

such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture:

Transfers, restriction. Provided, however, That the United States shall not transfer to a State or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress and egress to such surrounded areas by means which have been or are being customarily enjoyed with respect to other such areas similarly situated.

Acquisition. (c) Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of any area designated by this Act as wilderness if (1) the owner concurs in such acquisition or (2) the acquisition is specifically authorized by Congress.

GIFTS, REQUESTS, AND CONTRIBUTIONS

SECTION. 6. (a) The Secretary of Agriculture may accept gifts or bequests of land within wilderness areas designated by this Act for preservation as wilderness. The Secretary of Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated by this Act for preservation as wilderness if he has given sixty days advance notice thereof to the President of the Senate and the Speaker of the House of Representatives. Land accepted by the Secretary of Agriculture under this section shall become part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purposes of this Act.

ANNUAL REPORTS

SECTION 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list and descriptions of the areas in the system, regulations in effect, and other pertinent information, together with any recommendations they may care to make.

Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may be prescribed by the Secretary of Agriculture for the protection of the wilderness character of the land consistent with the use of the land for the purposes for which they are leased, permitted, or licensed. Subject to valid rights then existing, effective January 1, 1984, the minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and all amendments thereto.

Water resources. (4) Within wilderness areas in the national forests designated by this Act, (1) the President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial; and (2) the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance with regulations established by the Secretary of Agriculture in accordance with the general purpose of maintaining, without unnecessary restrictions on other uses, including that of timber, the primitive character of the area, particularly in the vicinity of lakes, streams, and portages: *Provided*, That nothing in this Act shall preclude the continuance within the area of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.

(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the national forests.

STATE AND PRIVATE LANDS WITHIN WILDERNESS AREAS

SECTION 5. (a) In any case where State-owned or privately owned land is completely surrounded by national forest lands within areas designated by this Act as wilderness, such State or private owner shall be given

may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.

Mineral leases, claims, etc. (3) Notwithstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the same extent as applicable prior to the effective date of this Act, extend to those national forest lands designated by this Act as "wilderness areas"; subject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery work, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; anti hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction, removal, and beneficiation of the mineral deposits, if the timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act: *Provided*, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after the effective date of this Act within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection.

Approved September 3, 1964.

LEGISLATIVE HISTORY:

HOUSE REPORTS:

No. 1538 accompanying H. R. 9070 (Committee on Interior & Insular Affairs) and No. 1829 (Committee of Conference).

SENATE REPORT:

No. 109 (Committee on Interior & Insular Affairs).

CONGRESSIONAL RECORD:

Vol. 109 (1963): April 4, 8, considered in Senate.

April 9, considered and passed Senate.

Vol. 110 (1964): July 28, considered in House.

July 30, considered and passed House, amended, in lieu of H. R. 9070.

August 20. House and Senate agreed to conference report.

APPENDIX C
WILDERNESS PRESERVATION
AND MANAGEMENT POLICY

THE NATIONAL PARK SERVICE WILL PRESERVE AN ENDURING RESOURCE OF WILDERNESS IN THE NATIONAL PARK SYSTEM AS PART OF THE NATIONAL WILDERNESS PRESERVATION SYSTEM, TO BE MANAGED FOR THE USE AND ENJOYMENT OF WILDERNESS VALUES WITHOUT IMPAIRMENT OF THE WILDERNESS RESOURCE.

From the earliest beginnings of the National Park System, the concept of wilderness preservation has been an integral part of park management philosophy. In the ensuing century, the national park movement has been a focal point for an evolving wilderness philosophy within our country.,

In 1964 the efforts of the wilderness movement were capped by passage of the Wilderness Act (P. L. 88-577, 78 Stat. 890). The main thrust of the act was to establish a National Wilderness Preservation System and provide for the study of federal lands in the national forests, wildlife refuges, and the National Park System for inclusion in the system. Consistent with the Wilderness Act, no park area may be designated as wilderness except by an act of Congress.

The Wilderness Act specifies that designation of a park area as wilderness shall in no manner lower the standards evolved for the use and preservation of such park in accordance with the Act to Establish a National Park Service, August 25, 1916 (39 Stat. 535), and other applicable legislation.

Wilderness areas shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, including "outstanding opportunities for solitude or a primitive and unconfined type of recreation." Thus, the preservation of wilderness character and values is the prime administrative responsibility of the Park Service, and activities to achieve other legal purposes of areas designated as wilderness must be administered so as to preserve the wilderness character. The public purposes for which park wilderness shall be managed relate to recreational, scenic, scientific, educational, conservation, and historical uses.

The National Park Service has conducted wilderness studies in conformity with the Wilderness Act, and the Secretary of the Interior has submitted legislative recommendations to the President and the Congress for designation of park areas as

wilderness. The Park Service will continue wilderness studies on parks authorized since the passage of the Wilderness Act wherever required or desirable.

The policies contained in this chapter relate specifically to park wilderness or to park areas that have been studied and recommended for wilderness designation. Policies of general application to parks are contained in other chapters and are not repeated here. The Park Service's wilderness policies may vary from those of the Forest Service and the Fish and Wildlife Service, based on the differing missions of the three agencies. All, however, have as their goal the preservation of wilderness character,

The Park Service has traditionally used the term "backcountry" to refer to primitive, undeveloped portions of parks. This, however, is not a specific land classification, but refers to a general condition of land that may span several of the Park Service's land classifications-that are essentially undeveloped and natural in character. Where the term wilderness is used, it will apply only to congressionally designated wilderness or to areas being studied or proposed for wilderness designation. The park "backcountry" would include the designated¹ or proposed wilderness, but could also include other roadless lands which contain minor developments not appropriate in wilderness and provide for a number of different park purposes and activities.

WILDERNESS REVIEWS

The Park Service will continue to review areas that qualify for wilderness study, consistent with provisions of the Wilderness Act and subsequent legislation directing that wilderness studies be made. Wilderness studies shall be subject to compliance with the Procedures for the Protection of Historic and Cultural Properties promulgated by the Advisory Council on Historic Preservation.

Protection of Roadless Study Areas

Roadless study areas subject to review for wilderness designation will be protected from activities which would endanger or alter their natural, primitive character until administrative study or the legislative process determines their suitability for wilderness designation.

Nature of Wilderness Land

The act defines wilderness, in part, as undeveloped federal land retaining its primeval character and influence which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable."

In interpreting this section, the Park Service considers lands that have been logged, farmed, grazed, or otherwise utilized in ways not involving extensive development or alteration of the landscape as qualifying for consideration of inclusion in wilderness proposals. Where such uses have impaired wilderness qualities, management will be directed toward restoration of wilderness character.

Management Considerations

An area will not be excluded from a wilderness recommendation solely because established or proposed management practices require the use of tools, equipment, or structures if those practices are necessary for the health and safety of wilderness travelers or protection of the wilderness area.

Grazing and Stock Driveways

Lands will not be excluded from a wilderness recommendation solely because of prior rights or privileges, such as grazing and stock driveways, provided these operations do not involve the routine use of motorized or mechanical equipment and do not involve development and structures to such an extent that the human imprint is substantially noticeable.

Historic Features

Historic features which are primary attractions for park visitors are not included in wilderness. However, an area that attracts visitors primarily for the enjoyment of solitude and unconfined recreation in a primitive setting may also contain historic features and still be included in wilderness. Typical historic features which may be included are archeological sites, historic trails, travel routes, battle sites, and minor structures. Historic trails may serve and be maintained as part of the wilderness trail system. However, if the planned scope and standard of maintenance would result in the imprint of man's work being substantially noticeable, the trail or other feature should not be included in wilderness.

Potential Wilderness Additions

When nonqualifying lands are surrounded by or adjacent to an area proposed for wilderness designation, and such lands will within a determinable time qualify and be available federal land, a special provision should be included in the legislative proposal which would provide for the future designation of these lands as wilderness upon publication in the *Federal Register* of a notice by the Secretary of the Interior that all uses thereon prohibited by the Wilderness Act have ceased.

Mining or Prospecting

Any recommendation that lands presently subject to mineral exploration and development be designated wilderness will only be made subject to the mineral interests being eliminated.

Utility Lines

Lands containing aboveground utility lines are not included in recommended wilderness. Areas containing underground utility lines may be included if the area otherwise qualifies as wilderness and the maintenance of the utility line does not require the routine use of mechanized and motorized equipment. No new utility lines are to be installed, and existing utility lines may not be extended or enlarged.

WILDERNESS USE

Wilderness is recognized in the Wilderness Act as an area “where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.”

The visitor must accept wilderness largely on its own terms. Modern conveniences are not provided for the comfort of the visitor; and the risks of wilderness travel, of possible dangers from accidents, wildlife, and natural phenomena must be accepted as part of the wilderness experience.

For a majority of park visitors, park wilderness will be appreciated primarily from outside wilderness boundaries as part of the park scene, viewed from park roads and developments. To them, as well as to the visitor who hikes into the wilderness, protection of the wilderness character is essential to the quality of the park experience.

information on Wilderness Use

Information on wilderness and backcountry use will be available in each park having such resources, specifying

- the kinds of clothing and equipment necessary for such use
- special dangers of wilderness use and precautions to be observed by the user
- regulations regarding wilderness and backcountry use

Limitation of Wilderness Use

If necessary to preserve the wilderness character, the Park Service will limit or disperse use through a variety of means best suited to the particular wilderness concerned.

Overnight Use

The Park Service may designate campsites where the protection of resources dictates the need. Campsite facilities are to be the minimum necessary for the health and safety

of the wilderness traveler and for the protection of the resources. Facilities may include an identifying site marker, pit toilet, tent sites, and unobtrusive fire rings.

Day Use

In smaller wilderness areas where the use pattern is essentially day use, provision of campsites may not be necessary, or they may be provided outside of wilderness boundaries.

Commercial Services

Guide services for horseback trips, hiking, boat trips, and similar services designed to provide opportunities for the enjoyment of primitive and unconfined types of recreation or other wilderness purposes of the area are permissible under careful control by each park as to their nature, number, and extent. Structures or facilities in support of such commercial services are not permitted within wilderness.

Caches

The storage of boats or other equipment by the public is not permitted. All equipment brought in must be taken out at the end of each wilderness trip.

Research

The Park Service, recognizing the scientific value of wilderness areas as natural outdoor laboratories, permits those kinds of research and data gathering which require such areas for their accomplishment, and which will not adversely modify either the physical or biological resources and processes of the ecosystems, nor intrude upon or otherwise degrade the aesthetic values and recreational enjoyment of wilderness environments. All activities must be in accord with wilderness management policies.

Refuse Disposal

Refuse may not be disposed of within wilderness, except for the burning of combustible materials where campsites are permitted. The "carry out" concept will be implemented by each park containing wilderness.

Hydrometeorologic Devices

Hydrologic or hydrometeorologic devices are usually permanent or semi-permanent installations used to gather water and climatic data related to the management of resources outside of the wilderness. Such existing devices may be retained in wilderness. New or additional devices should not be placed in wilderness, except upon a finding by the Secretary of the Interior that essential information cannot be obtained from locations outside of wilderness and that the proposed device is the minimum tool to successfully and safely accomplish the objective. The installation, servicing, and

monitoring of these devices shall be accomplished by such means as will assure human safety and will result in the minimum permanent and temporary adverse impact upon the wilderness environment.

WILDERNESS MANAGEMENT

Use of the Minimum Tool or Equipment

In the management of wilderness resources and of wilderness use, the Park Service will use the minimum tool necessary to successfully, safely, and economically accomplish its management objectives. When establishing the minimum tool, economic factors should be considered the least important of the three criteria. The chosen tool or equipment should be the one that least degrades wilderness values temporarily or permanently. Accepted tools, equipment, structures, and practices may include but are not limited to: fire towers, patrol cabins, pit toilets, spraying equipment, hand tools, and fire-fighting equipment. The specifics of wilderness management for a given park will be included in the park's backcountry management plan.

A detailed discussion of the minimum tool *and the specific approval authority required* are provided in the backcountry/wilderness management guidelines. Specific approval is required for the nonemergency use of motorized or mechanical equipment, the installation of new facilities or the modification of existing facilities in wilderness.

Motorized or Mechanical Equipment

As a general rule, use of motorized equipment or mechanical transport by the public is not allowed. Boating with hand propelled craft is an acceptable use of wilderness. Language customarily used in the National Park Service's recommended wilderness legislation would make applicable to the National Park Service a special provision of the Wilderness Act pertaining to the use of aircraft and motorboats. Under this provision, where the use of aircraft and motorboats has already become established, the use may be permitted to continue subject to such restrictions as the Secretary of the Interior deems desirable. This does not mean that previously established motorboat and aircraft uses of an area must be allowed to continue upon the designation of that area as wilderness or that water areas must be excluded from wilderness recommendation where motorboats are involved. Any recommendation to allow established aircraft or motorboat use to continue in wilderness would be based upon a finding that the purpose, character, and manner of such use is suitable to the specific wilderness under consideration.

Administrative use of motorized equipment or mechanical transport, including motorboats and aircraft, is permitted only as follows:

- in emergency cases involving the health and safety of wilderness users or the protection of wilderness values
- as necessary to meet the minimum needs of management .to achieve the purpose of the area

MANAGEMENT FACILITIES

Wilderness is defined, in part, as undeveloped federal land retaining its primeval character and influence, without permanent improvements. Facilities are permitted only as necessary to meet the minimum requirements for the administration of the wilderness area.

Roads

Permanent roads are not permitted in wilderness. Where wilderness includes abandoned roads, their use by vehicles is not permitted and the road should be restored to a natural condition. Temporary vehicular access is permitted only to meet the minimum requirements of emergency situations.

Trails

Narrow, unpaved foot and horse trails are permissible. Trails intended for foot travel only will be maintained, generally, to a width sufficient for persons to walk single-file. Trails intended for combined foot and horse travel, or for horse travel only, will be maintained to a width sufficient for horses and their riders to travel single file. Trail bridges are permitted at stream crossings if the crossing, without a bridge, would be unsafe during the normal period of use.

Heliports, Helipads, Helispots, and Airstrips

Heliports, helipads, and airstrips are not permissible. Natural openings may be utilized as helispots. No site marking or improvements of any type will be permitted, except in conjunction with specific emergencies, after which the area will be restored.

Communications Facilities

Radio facilities are permitted where necessary for management of the wilderness area.

Fire Management

Action will be taken to control wildfires in such a way as to protect natural and cultural features and to minimize the lasting impacts of the control action and the fire itself.

Fire Lookouts

Fire lookouts for wilderness protection are permitted where there is no adequate alternative method of fire detection.

Ranger Stations, Patrol Cabins, and Storage Structures

These structures are permitted only to the minimum extent necessary for wilderness management.

Fences and Hitching Racks

Fences and hitching racks are permitted only where essential for protection of the resource.

Chalets and Concessioner Camps

These facilities are not permissible.

Signs and Markers

Signs and markers may be provided only where they are necessary for visitor safety, management, or resource protection.

Tables

Picnic tables are not permissible.

Toilets

Toilet facilities are limited to locations where there are health and sanitation problems or danger of serious resource damage, and where reducing or dispersing visitor use is not practical or realistic.

PLAQUES, MEMORIALS, AND BURIAL PLOTS

Existing commemorative features and burial plots may be retained. No future additions may be made, unless permitted by existing reservations.



APPENDIX D

IN REPLY REFER TO

UNITED STATES
DEPARTMENT OF THE INTERIOR

OFFICE OF THE SOLICITOR
SAN FRANCISCO FIELD OFFICE
450 GOLDEN GATE AVENUE, BOX 36064
SAN FRANCISCO, CALIFORNIA 94 102

Your Ref:
L1425(WR)OL
LAME General

October 11, 1977

Memorandum

To: Regional Director, Western Region,
National Park Service

From: Field Solicitor, San Francisco

Subject: Wilderness Designation on Reclamation
Withdrawals, Lake Mead

As requested, we have reviewed the question of listing lands for wilderness designation which are subject to existing reclamation withdrawals at Lake Mead. The lands in question were withdrawn for reclamation purposes prior to formal establishment of the National Recreation Area on October 8, 1964 (16 U.S.C. § 490n).

In the Act establishing the Lake Mead NRA, it is provided that,

"[E]stablishment or revision of the boundaries of the said national recreation area . . . shall not . . . affect the validity of withdrawals heretofore made for reclamation or power purposes. All lands in the recreation area which have been withdrawn or acquired by the United States for reclamation purposes shall remain subject to the primary use thereof for reclamation and power purposes so long as they are withdrawn or needed for such purposes" (Public Law 88-639, § 2; 16 U.S.C. § 460n-1.)

In the legislative history of the Lake Mead establishment Act, one finds a statement in reference to the Lake Mead withdrawals that, "in that part of the area which was withdrawn for reclamation project purposes, this shall continue to be the primary use"(1964 U.S. Code Cong. Admin. News 3919).

On September 3, 1964, one month prior to passage of the Lake Mead NF 's establishment Act, the National Wilderness Preservation System Act was passed (Public Law 88-577, 78 Stat. 890,).

In the Wilderness Act, it is provided that wilderness areas established under the Act are to be administered in such a manner that they are unimpaired for use and enjoyment as wilderness (16 U.S.C. § 1131(a)). "Wilderness" as used in the Act is defined to refer to an area "retaining its primeval character with the imprint of man's work substantially unnoticeable" (16 U.S.C. § 1131(c)). From this it is apparent that a withdrawal for primarily reclamation purposes could conflict with wilderness area designation and withdrawal.

The Wilderness Act does contain a provision permitting reservoirs and related uses in wilderness areas, but this provision is limited to areas within the national forests (16 U.S.C. § 1133(d)(4)). It is inapplicable to Lake Mead.

Based upon the foregoing, the existing reclamation withdrawals will have to be revoked prior to inclusion of areas subject to them in the Lake Mead Wilderness. Revocation could be effected either prior to wilderness designation, or by the Act formally establishing the Lake Mead Wilderness.

If there are any further questions, please call.

A handwritten signature in dark ink, appearing to read "Ralph G. Mihan". The signature is fluid and cursive, with the first name "Ralph" being more prominent.

Ralph G. Mihan
Field Solicitor

cc:
Superintendent, Lake Mead

APPENDIX E

RESULTS OF THE PUBLIC HEARING AND WRITTEN RESPONSES TO THE PRELIMINARY WILDERNESS STUDY, NOVEMBER 1973

Governor of Arizona

Governor Williams opposed the establishment of wilderness within Lake Mead National Recreation Area, favoring a multiple-use concept for the area.

Hualapai Indians

The Hualapai Indians opposed the designation of wilderness north of the Colorado River (now within Grand Canyon National Park) because this designation would preclude the construction of the Bridge Canyon Dam on the Colorado River.

Conservation Groups Proposal

The Nevada and Arizona conservation groups and The Wilderness Society urge the following:

Establishment of a 915,000-acre Lake Mead wilderness area, including: two additional units along Lake Mohave, consisting of 17,000 acres south of Unit 3, and 3,000 acres north of Unit 4; expansion of Units 5 and 6 to include the rim areas and the Funnel; and expansion of Unit 7 south to the Willow Beach road and north to Lone Palm Hot Spring.

Addition of three units in the Lake Mead area, including 7,500 acres in the River Mountains, 8,200 acres south of Unit 19, and 13,600 acres northeast of Pierce Ferry, as well as minor road closures and expansions in Units 8, 14, 18, and 19.

Expansion of Unit 20 south to the recreation area boundary and west to Grapevine Mesa and expansion of Unit 21 to include the entire recreation area east of the Grand Wash Cliffs and north of the river, except road corridors to Twin Springs Point, Kelly Point, the Copper Mountain Mine, and Whitmore Canyon.

Extension of the wilderness boundary of units adjoining the reservoirs to the high-water line.

Deletion of the unnecessary special provisions.

Inclusion in wilderness of the Colorado River upstream from Separation Canyon, upon completion of the Park Service phaseout of motorized watercraft.

Encouragement of the Hualapai Indians to preserve and protect the wilderness qualities of their portion of the Grand Canyon.

Those Opposing Wilderness

The Department of Commerce, the State of Arizona, and Mohave County opposed wilderness because they desire multiple use and exploitation of mineral resources. Some organizations and several individuals expressed similar views.

SUMMARY OF RESPONSES RECEIVED

<u>Recommendation</u>	<u>Public Agencies</u>	<u>Private Organizations</u>	<u>Letters and Oral Statements</u>	<u>Signitures on Petitions</u>	<u>Totals</u>
National Park Service proposal	0	3	14	50	67
Enlarge National Park Service proposal	0	43	354	0	397
Less wilderness	5	0	0	0	5
No wilderness	4	9	11	0	24
Wilderness; no specific recommendations	2	1	4	0	7
Acknowledgement received; no specific comment	2	1	1	0	4
Environmental- impact-statement response	1	0	0	0	1
TOTALS	14	57	384	50	505

**VIEWS OF OTHER GOVERNMENT AGENCIES ON THE PRELIMINARY
WILDERNESS PROPOSAL WERE RECEIVED FROM THE FOLLOWING:**

**U.S. Department of Agriculture
Forest Service**

**U .S. Department of Commerce
General Counsel for Legislation**

**U .S. Department of the Interior
Geological Survey
Bureau of Indian Affairs
Bureau of Land Management (EIS response; no position on
wilderness;
letter not printed)
Bureau of Mines
Bureau of Reclamation
Lower Colorado Regional Office**

U .S. Department of Transportation

**State of Arizona
Governor (oral statement by his representative)
State Land Department**

**State of Nevada
Governor (in addition, comments by natural resource agencies)
Department of Conservation and Natural Resources
Nevada Department of Fish and Game (oral statement)**

**Mohave County
County Manager (oral statement)**

Hualapai Tribal Council (oral statement)

APPENDIX F

WILDERNESS TEAM PERSONNEL

The following individuals contributed to the development of the Preliminary Wilderness Proposal for Lake Mead National Recreation Area and to the development of its draft environmental statement.

TERRY R. CARLSTROM
Team Captain - Wilderness Coordinator
Denver Service Center

JON F. HAMAN
Environmental Specialist - Geologist
Denver Service Center

JERRY WAGERS
Superintendent
Lake Mead National Recreation Area

BILL BURKE
Resource Specialist
Lake Mead National Recreation Area

JIM VANDERFORD
Landscape Architect
Lake Mead National Recreation Area

JIM HOWE
Wilderness Coordinator
Office of Legislative Support
NPS Washington, D.C.

MAX HAEGLEY
Environmental Specialist
Bureau of Reclamation
Boulder City, Nevada

Publication services were provided by the graphics staff of the Denver Service Center. NPS 1379

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The Department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

UNITED STATES DEPARTMENT OF THE INTERIOR

REVISED

DRAFT ENVIRONMENTAL STATEMENT
PRELIMINARY WILDERNESS PROPOSAL

DES 79-12

LAKE MEAD NATIONAL RECREATION AREA
ARIZONA AND NEVADA

Prepared by the
Denver Service Center
National Park Service
Department of the Interior


Regional Director, Western Region

SUMMARY

☒ Draft ☐ Final Environmental Statement

Department of the Interior, National Park Service,
Western Region, San Francisco, California

1. Type of Action: ☐ Administrative ☒ Legislative

2. Brief Description of Action:

To designate as wilderness 25 units totaling 418,655 acres within Lake Mead National Recreation Area in Clark County, Nevada and Mohave County, Arizona. In addition, 262,125 acres are proposed as potential wilderness additions to be added to the wilderness system at such time as the lands so qualify under the Wilderness Act of 1964.

3. Summary of Environmental Impact and Adverse Environmental Effects :

Wilderness designation will restrict management prerogatives and will limit development of recreation and reclamation facilities to non-wilderness areas of the recreation area. The action will provide increased protection from encroachment by man, and will have no major adverse effect upon the natural, archeological, or historic resources of the area. Wilderness designation will prohibit reclamation projects, leases for oil, gas, and minerals on wilderness lands resulting in a potential, but unknown and unproven social and economic loss.

4. Alternatives Considered:

- A. No Action
- B. Less-Wilderness Designation
- C. Additional Special Provisions

5. Comments Have Been Requested from the Following:

(see page iii for listing)

6. Date Made Available to EPA and to the Public:

Draft Statement: March 16, 1979

Final Statement:

Federal Agencies

Advisory Council on Historic Preservation
Department of Agriculture
 Forest Service
 Soil Conservation Service
Department of Defense
 Army Corps of Engineers
Department of the Interior
 Bureau of Indian Affairs
 Bureau of Land Management
 Bureau of Mines
 Bureau of Reclamation
 Fish and Wildlife Service
 Geological Survey
 Heritage Conservation and Recreation Service
 Office of Surface Mining
Department of Transportation
 Coast Guard
 Federal Aviation Administration
Environmental Protection Agency
Federal Power Commission

State Agencies

Arizona State Clearinghouse
 Arizona State Historic Preservation Officer
Nevada State Clearinghouse
 Nevada State Historic Preservation Officer
Utah State Historic Preservation Officer

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	
I. DESCRIPTION OF THE PROPOSAL	I-1
A. PRELIMINARY WILDERNESS PROPOSAL	I-1
1. The Wilderness Study	I-1
2. Wilderness Designation	I-5
B. WILDERNESS UNITS	I-6
1. Unit 1 - Christmas Tree Pass	I-6
2. Unit 2 - Nellis Wash	I-6
3. Unit 3 - Black Mountains	I-7
4. Unit 4 - Opal Mountain	i-7
5. Unit 5 - Eldorado Mountain	I-7
6. Unit 6 - River Mountains	I-7
7. Unit 7 - Kingman Wash	I-8
8. Unit 8 - White Hills, Unit 9 - Temple Bar, and Unit 10 - Greggs Hideout	I-8
9.. Unit 11 - Cathedral Wash	I-9
10. Unit 12 - Overton	I-9
11. Units 13 through 22	I-9
12. Unit 23 - Andrus Point, Unit 24 - Whitmore Point, and Unit 25 - Lava	I-10
C. POTENTIAL WILDERNESS ADDITIONS	I-10
1. Potential Sites for Bureau of Reclamation Developments	I-10
2. Unit B - Cottonwood Valley	I-11
3. Unit L - Shivwits Plateau	I-11
4. State, County, and Private Lands	I-12
5. Mineral Leases	I-12
D. NON-WILDERNESS AREAS	I-12
E. SPECIAL PROVISIONS	I-13
1. Watering Devices	I-13
2. Reclamation	I-13
3. Mineral Leasing	I-14
F. INTERRELATIONSHIPS WITH OTHER PLANS AND PROPOSALS	I-15
1. Grand Canyon Adjacent Lands Study	I-15
2. Grand Canyon Wilderness Recommendation	I-15
3. Lake Mead Boundary Revisions	I-19
4. Lake Mead Natural Resources Management Plan	I-19
5. Bureau of Land Management - Wilderness Studies	I-19

II.	DESCRIPTION OF THE ENVIRONMENT	I I-I
A.	LAKE MEAD NATIONAL RECREATION AREA	II-1
1.	Purpose	II-1
2.	Access and Regional Setting	II-2
3.	Land Classification	II-2
4.	Land Use	II-4
a.	Reclamation	II-4
b.	Recreation	II-6
c.	Grazing	II-8
d.	Mining	II-10
B.	CULTURAL RESOURCES	II-11
1.	Archeological	II-11
2.	Historic	II-14
C.	NATURAL RESOURCES	II-17
1.	Climate	II-17
2.	Basin and Range Province	II-18
a.	Geology	II-18
b.	Biotic Communities	II-20
3.	Colorado Plateau Province	II-27
a.	Geology	II-27
b.	Biotic Communities	II-27
4.	Endangered or Threatened Species	II-29
5.	Environmental Quality	II-30
a.	Air Quality	II-30
b.	Water Quality	II-31
c.	Noise	II-32
6.	Probable Future Environment Without the Proposal	II-31
III.	ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION	III-1
A.	ENVIRONMENTAL IMPACTS ON EXISTING LAND USE	III-1
1.	Mining	III-1
2.	Grazing	III-2
3.	Reclamation	III-2
4.	Recreation	III-3
B.	IMPACTS ON NATURAL RESOURCES	III-5
C.	IMPACTS ON CULTURAL RESOURCES	III-7
D.	IMPACTS ON SOCIOECONOMIC FACTORS	III-8
E.	IMPACTS ON WILDERNESS VALUES	III-9
IV.	MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION	IV-1
V.	ANY ADVERSE EFFECTS THAT CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED	V-1
VI.	THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	VI-1

VII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED	VII-1
VIII. ALTERNATIVES TO THE PROPOSED ACTION	VIII-1
A. NO ACTION	VIII-1
B. LESS WILDERNESS DESIGNATION	VIII-2
1. River Mountains	VIII-4
2. Overton Unit	VIII-5
C. ADDITIONAL SPECIAL PROVISIONS	VIII-5
1. Cultural Resource Management	VIII-5
2. Reclamation Withdrawals	VIII-6
3. Mining	VIII-7
IX. CONSULTATION AND COORDINATION WITH OTHERS	IX-1
A. CONSULTATION AND COORDINATION IN THE DEVELOPMENT OF THE PROPOSAL AND IN THE PREPARATION OF THE DRAFT ENVIRONMENTAL STATEMENT	IX-1
1. Consultation with the Public	IX-1
a. Field Trips for Consultation with Local Ranches	IX-1
b. Wilderness Pre-Planning Workshops	IX-2
2. Coordination with Other Agencies	IX-8
a. Bureau of Reclamation	IX-8
b. Bureau of Land Management	IX-8
Southern Nevada Water System	IX-9
B. COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT	IX-9

MAPS

WILDERNESS PLAN, LAKE MEAD NATIONAL RECREATION AREA	I-3
RECLAMATION WITHDRAWN LAND	II-5
GRAZING ALLOTMENTS	II-9

APPENDIXES

A. U.S. BUREAU OF RECLAMATION STUDY	A-1
B. THE WILDERNESS ACT OF 1964	B-1
C. WILDERNESS PRESERVATION AND MANAGEMENT POLICIES OF THE NATIONAL PARK SERVICE	C-1
D. FIELD SOLICITOR'S MEMORANDUM - WILDERNESS DESIGNATION ON RECLAMATION WITHDRAWALS	D-1
E. RESULTS OF THE PUBLIC HEARINGS AND WRITTEN RESPONSES TO THE PRELIMINARY WILDERNESS STUDY, NOVEMBER 1973	E-1
F. WILDERNESS TEAM PERSONNEL	F-1

I. DESCRIPTION OF THE PROPOSAL

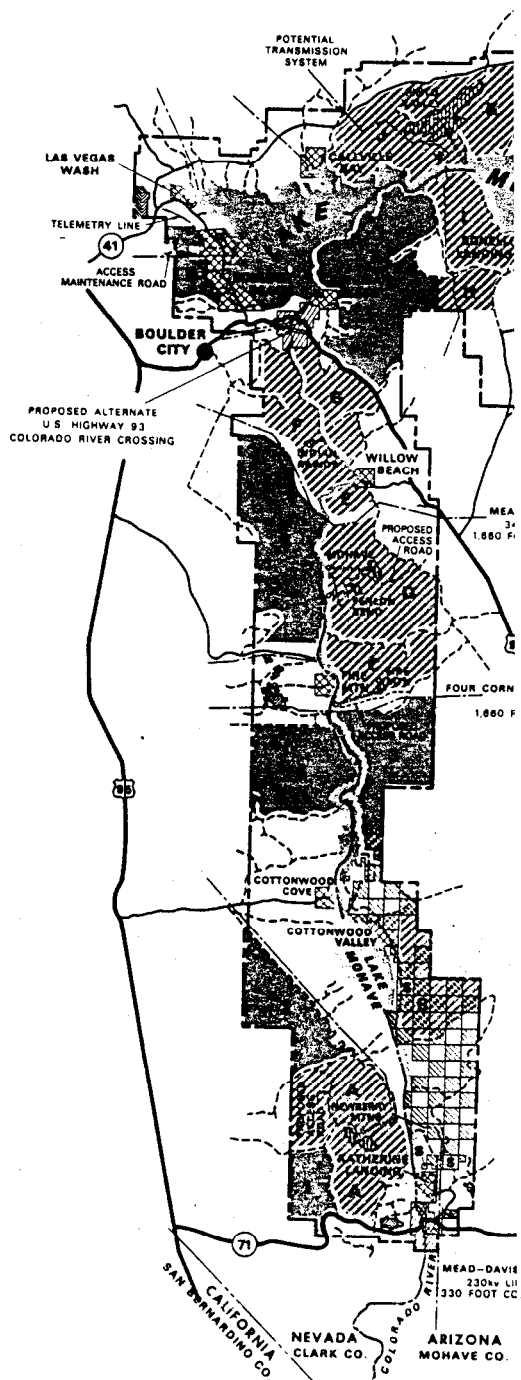
A. PRELIMINARY WILDERNESS PROPOSAL

Twenty-five units totaling 418,655 acres are being proposed for wilderness designation (as shown on the following map) in the Lake Mead National Recreation Area. These units comprise about 28 percent of the area's total acreage. The preliminary proposal also includes potential wilderness additions totaling 262,125 acres which will be designated wilderness when the current non-qualifying conditions no longer exist, and the area otherwise qualifies as wilderness. The total wilderness and potential wilderness additions is 680,780 acres or about 45 percent of the national recreation area.

<u>Summary</u>					
Unit	<u>Wilderness</u>	<u>Potential Wilderness Addition</u>	Unit	<u>Wilderness</u>	<u>Potential Wilderness Addition</u>
1	7,650		19	12,100	
2	15,870		20	13,895	
3	17,970	640	21	7,720	
4	17,635		22	14,020	
5	29,665		23	14,290	615
6	6,975		24	32,215	
7	35,530		25	10,710	600
8	25,580		A		32,955
9	16,665		B		15,295
10	9,885	80	C		15,145
11	15,220		D		25,605
12	24,040		E		2,045
13	10,610		F		14,645
14	22,095		G		13,030
15	14,620		H		5,305
16	8,545		I		13,875
17	15,370		J		23,765
18	19,780		K		14,545
			L		83,980
Total				418,655	262,125

I. The Wilderness Study

During 1973 and 1974, the National Park Service conducted a wilderness study within Lake Mead National Recreation Area pursuant



to the Wilderness Act of 1964 (P. L. 88-577). A wilderness recommendation and draft environmental impact statement (DES 74-3) evolved from this study and public participation. However, the entire recreation area is subject to withdrawals for power purposes, and in view of the potential energy needs of the West the President's message to the Congress on December 4, 1974 recommended that further studies be made and recommendations be submitted within three years.

The Bureau of Reclamation immediately began first-phase studies to determine the reclamation potentials within the recreation area. These first-phase studies have been completed and a report submitted to the National Park Service in January 1977. This report, as modified by the Bureau through September 1977, forms Appendix A of this environmental statement. These reclamation factors have been given consideration in the formulation of the proposed wilderness units of the present recommendation, and affect the wilderness suitability of roadless areas within the recreation area more than any other factor.

Congress passed the Grand Canyon Enlargement Act (P. L. 93-620) in January 1975. This Act transferred the Sanup Plateau, 93 miles of the Colorado River, and portions of the Grand Wash Cliffs from the recreation area to Grand Canyon National Park. This action reduced the gross acreage of Lake Mead National Recreation Area to 1,496,600 acres. Road less areas deleted from the recreation area have been analyzed for wilderness potential in the proposed wilderness classification for Grand Canyon National Park (DES 76-28).

2. Wilderness Designation

The roadless study area delineated the boundaries of the land areas to be considered for wilderness designation within the recreation area. The character of each unit was evaluated by the definition of wilderness as is specified in Section 2.(c) of the Wilderness Act (P. L. 88-577; see Appendix B), and Wilderness Preservation and Management Policies of the National Park Service (see Appendix C).

Certain specific uses are permitted by legislation in the recreation area which are not permitted within natural area units of the National Park System. These uses, and the conditions they create, were carefully considered in the process of determining wilderness suitability, and in certain instances caused the exclusion of otherwise suitable areas from wilderness recommendation. Examples of areas not recommended for wilderness because of specific uses are existing patented claims and existing mining leases, existing developed areas and areas identified for future recreational development, the reservoir surface with its use by motorized boats, road access corridors for grazing support, administrative needs or general recreational purposes, and Bureau of Reclamation development sites based on existing legislation.

Use of the wilderness areas is predicated on the interrelationship with the other recreational activities for which the recreation area was created. Access road systems, recreational developments, motorized craft on the reservoir, and other general recreational use complement use of adjacent primitive areas as wilderness, as the concept is applied in a national recreation area, and were instrumental in determining the size of each proposed wilderness unit.

B. WILDERNESS UNITS

The units proposed as wilderness include most of the lands in the recreation area which possess primitive characteristics. Lands proposed for wilderness whose pristine qualities have been marred by man's past activities will be returned to a more natural state and appearance by an active program of land restoration. The remaining lands and waters will continue to be managed and utilized for recreation, reclamation and power projects, grazing, and other purposes consistent with the act of October 8, 1964 (P. L. 88-639), which established Lake Mead National Recreation Area.

The wilderness boundary lines of the units follow topographic features, access roads, the recreation area boundary line, section lines, and a line marking a 300-foot horizontal setback from the high-water lines of Lake Mohave and Lake Mead.

I. Unit 1 - Christmas Tree Pass

This unit consists of 7,650 acres, and is in the extreme southwest corner of the recreation area. It is bordered on the north and east by the Grapevine Canyon Road and Highway 71, and on the west and south by the boundary of the recreation area. The area centers on the Newberry Mountains, which rise to an elevation of 5,600 feet and offer a cool refuge from the heat of the surrounding desert lowlands. Davis Dam, the Mohave Power Plant, Katherine Landing, and Bullhead City are developments visible from the southern and eastern portions of this unit.

2. Unit 2 - Nellis Wash

This 15,870-acre unit includes portions of the isolated Newberry Mountains along the western side of the recreation area. Finger-like drainages and alluvial fans extend eastward from the mountains toward Lake Mohave. Some mining has occurred within the unit, as is the case in most areas of the recreation area. However, it is not obtrusive and in effect adds an historic element that is characteristic of the old West. No active mining occurs within the unit. A powerline corridor and access road form a boundary to the north and east. The Empire Wash access road bounds the unit on the south, and the recreation area boundary forms its western edge.

3. Unit 3 - Black Mountains

The Black Mountains, capped by 2,000-foot Mount Davis, provide the background to users of Lake Mohave. Approximately 17,970 acres are included within this proposed wilderness unit. Scattered washes and side canyons transect the Black Mountains from east to west as they wend their way to the Colorado River. The Four Corners-Eldorado Transmission Line forms the north boundary, the west boundary is 300 feet from the high-water line of Lake Mohave, the south boundary follows a series of roads of the Cottonwood Valley system, and the east boundary is the recreation area boundary line.

4. Unit 4 - Opal Mountain

Within this proposed wilderness is a portion of the Eldorado Mountains, gently rolling hills and outwashes extending to Lake Mohave. Rugged mountains, secluded valleys, and flat alluvial fans provide opportunities for seclusion and isolation in a setting of scenic splendor. The unit is bounded on the north by the Aztec Powerline road, on the east by a 300-foot setback from Lake Mohave, on the south by the Opal Mountain Road, and on the west by the recreation area boundary. Approximately 17,635 acres are included within this unit.

5. Unit 5 - Eldorado Mountain

Contained within this 29,665-acre unit are the picturesque and rugged Eldorado Mountains. The unit is a maze of peaks and side canyons with vertical cliffs extending to the edge of the Colorado River. State Highway 60 forms the southern boundary; the Colorado River/Lake Mohave 300-foot setback constitutes the east boundary, the northeast side is bounded by the Mead-Liberty Transmission Line, and the recreation area boundary forms the west unit boundary.

6. Unit 6 - River Mountains

This 6,975-acre wilderness unit is dominated by the rugged irregular River Mountains. Harbored within this range is a herd of approximately 250 desert bighorn that utilize the excellent habitat provided by this natural refuge and nearby man-created water sources. The range is surrounded by urban environments and heavy recreational pressures associated with use of the Boulder Basin.

The topography of the River Mountains is diverse, ranging from low rolling hills, to extremely rugged terrain. Elevations range from 1,260 feet at Boulder Beach on the eastern side to 3,789 feet at the crest of the mountains. A ridge of peaks, extending 3 miles from

the center of the range south to Black Mountain, constitutes the highest part of the River Mountains. Eastward from this ridge, the topography is heavily cut by major drainages and resulting steep canyons. The remainder of the range, though rough in isolated areas, is low rolling country, washes, and alluvial fans.

This unit includes part of the Southern Nevada Water Project (SNWP) including the River Mountains Tunnel, which carries water from Lake Mead to municipal and industrial users. On the surface above the tunnel there is a primitive road used on an irregular basis for maintenance and to serve survey needs in connection with future project work. SNWP construction is now underway, and involves adding pumps and pipelines to both ends of the existing tunnel. There is the possibility that a second tunnel might have to be bored if water from other sources is diverted to Lake Mead.

The National Park Service recognizes the necessity to maintain, and repair damage to, the existing tunnel and the potential for expansion of the tunnel facility, but finds the surface lands to be in a primitive condition and containing significant wilderness values. The only evidence of man's work which will be found within this unit a primitive four-wheel-drive access route used on an irregular basis for maintenance and to perform survey work as needed for the reclamation projects. The National Park Service proposes that this irregular and infrequent use on the surface be allowed to continue, and that it is not significant enough, or of such magnitude, to disqualify any portion of this unit from wilderness designation.

7. Unit 7 - Kingman Wash

Approximately 35,530 acres are included within this unit. It is bordered on the north by the 300-foot horizontal setback from the high-water line of Lake Mead; on the west by the Kingman Wash development and access road; on the south by U.S. 93; and on the east by access roads. An area used for intensive recreation and an area which may be needed as a powerline corridor are identified as non-wilderness along the east boundary. The undulating Black Mountains typify the topography of the region. Access to the unit is provided on all sides by existing road corridors.

8. Unit 8 - White Hills, Unit 9 - Temple Bar, and Unit 10 - Gregg's Hideout

These proposed wilderness units are located within the White Hills. This rolling hill country includes some evidence of earlier historic mining activities and trails associated with these efforts. The early methods of mining did not scar the area excessively and many scars have healed to the point of not being noticeable. However, areas further to the west are not proposed as wilderness because they

have been severely scarred by modern exploration techniques and road construction. Isolation, seclusion, scenic views and historic significance characterize the proposed wilderness. Unit boundaries consist of access roads, setbacks from Lake Mead, development areas and recreation area property lines. Access to the area is possible from existing roads, hiking from developed areas such as Temple Bar, or by boat from Lake Mead. These three units contain a total of approximately 52,130 acres.

9. Unit -I Cathedral Wash

This 15,220-acre unit is bounded on the north by the Echo Wash access road; on the east, by the 300-foot setback from the high-water line of Lake Mead; on the south, by an access road; and on the west, by State Highway 41A and the Boathouse Cove access road. Mountainous terrain representing the northeast extremities of the Black Mountains dominates the area and contrasts directly with the flat surface of Lake Mead.

10. Unit 12 - Overton

Most of this 24,040-acre unit consists of flat to "badland-like" lands sloping westward from mountainous terrain to a road corridor east of the recreation area boundary. The unit forms the scenic background for lake users, and for shoreline users on the west side of Overton Arm. These flat outwashes lack the spectacular contrasts found within other units. This unit has a typical desert landscape. It has retained its primitive condition, and affords an opportunity for seclusion and an unconfined type of recreation. On the north, the unit is bordered by the Narrows South access road; on the east, by the recreation area boundary; on the south, by the Catclaw access road, and on the west, by the 300-foot setback from Lake Mead.

II. Units 13 through 22

These units are known as Twin Springs, Scanlon Wash, Hiller Mountains, Hell's Kitchen, Indian Hills, Cockscomb, Grand Wash Cliffs, Iceberg Ridge, South Cove, and Pierce Ferry. The units contain rugged mountain ranges which provide a scenic background for the Virgin Basin section of Lake Mead. Gently sloping outwash fans extend from the mountain fronts to plunge abruptly into the reservoir .

The units are bounded by a network of roads that provide access to developed areas or the lakeshore, by recreation area boundaries, and the lakeshore setback. The interior portions of these wilderness units are readily accessible from adjacent roads. Units 13 through 22 contain a total of approximately 138,755 acres.

12. Unit 23 - Andrus Point, Unit 24 - Whitmore Point, and Unit 25 - Lava

These three proposed wilderness units consist of approximately 58,430 acres in the northesst sector of the recreation area. Contained within these units are Parashant, Andrus, and Whitmore Canyons; all are precipitous side canyons of significant grandeur that drain into the Grand Canyon. The entire area is undeveloped land retaining its primeval character with the imprint of man's work substantially unnoticeable and provides an opportunity for solitude or a primitive and unconfined type of recreation in a scenic setting of steep escarpments, colorful redwalls, and deep canyons.

Geologic formations and processes in evidence here may provide information on the origin of the Grand Canyon, which is of interest to the scientific and educational communities. Also of interest to these communities are the archeological sites of several Indian cultures, including the Virgin Anasazi and more recently the Paiutes.

Grazing has occurred in this region for over a hundred years and the Lake Mead establishing act identifies grazing as an acceptable use. Roads and tanks or water pockets found to be needed for current grazing operations and requiring road access are excluded from the wilderness proposal. All of the roads in this area and on the Shivwits Plateau serve dual roles providing access for recreation and for grazing support purposes.

Wilderness unit boundaries consist of road systems, recreation area boundaries, and plateau rims. Adjacent primitive areas of Grand Canyon National Park were considered while deriving this wilderness proposal for Lake Mead. The areas are contiguous and provide for a contiguous unit of primitive lands extending westward from the Pine Mountains across the Sanup and Shivwits Plateaus to the Grand Wash Cliffs.

C. POTENTIAL WILDERNESS ADDITIONS

I. Potential Sites for Bureau of Reclamation Developments

Eleven areas, identified by letters A and C-K on the preliminary wilderness plan, are proposed as potential wilderness additions. The Bureau of Reclamation has identified these areas as potential locations for reclamation facilities ranging from modification of Hoover Dam to new transmission line corridors (see Appendix A). Each of these potential facilities could require a considerably larger area for construction activities than the principal construction owing to required site for access roads, transmission and utility lines, and borrow pits. The Bureau of Reclamation plans to make the

final selection of sites for development by 1983. It is recommended that those areas which are not selected for construction of reclamation facilities will become wilderness. In the interim, these areas will be managed as potential wilderness to retain their natural condition and to provide opportunities for solitude and an unconfined type of recreation.

2. Unit B - Cottonwood Valley

Cottonwood Valley was not previously considered for wilderness because of outstanding mineral reservations. However, this outwash trending to the west provides solitude and isolation in a primitive setting just to the north of a major development at Katherine Landing. It is the intent of the National Park Service to purchase the outstanding rights. Until that time it is proposed as a potential wilderness addition. This 15,295-acre unit is bounded on the north, south, and west by existing access roads and on the east by the recreation area boundary. The terrain slopes gently westward toward Lake Mohave.

3. Unit L - Shivwits Plateau

Approximately 83,980 acres are included within this unit. A diversity of activities occur in this remote section of Lake Mead ranging from hunting to grazing. Due to a higher altitude, the region is cooler, has more precipitation, and supports pinyon-juniper and ponderosa pine forests. Therefore, it also contains a wider variety of wildlife, including the highest number of mule deer to be found in the recreation area. Big game hunting is a favorite recreational pursuit and probably accounts for the majority of visitation to this area. The cooler, wetter climate also provides for some of the better grasslands which sustain larger numbers of cattle per unit of area than other sections of the recreation area. Additional recreational activities include nature study, dry camping with a vehicle, rockhounding, exploring with four-wheel-drive vehicles, and hiking the superlative rim country. Kelly Point, Twin Point, and other points along the rim permit spectacular views of the Grand Canyon.

There are 66,350 acres of land within this unit which are subject to mineral reservations and surface repurchase rights held by Santa Fe Industries. The National Park Service intends to acquire these rights in the near future. It is proposed that this area be designated as a potential wilderness addition until the purchase of outstanding rights is consummated.

Wilderness unit boundaries follow rims, internal access roads, and recreation area boundaries. Adequate access is provided for hunting, four-wheel-drive exploring, scenic overlooks, etc. The proposal does not close any roads on the Shivwits and, in certain

instances recommends that additional existing roads be added to the approved roads plan as outlined in the Natural Resources Management Plan for the recreation area to meet both recreation needs and grazing requirements. Several of the units may appear to be narrow and splintered by access roads. However, when considered along with the adjacent proposed wilderness in Grand Canyon, it is apparent that these would form a significant contiguous wilderness unit.

4. State, County, and Private Lands

Within areas proposed for potential wilderness designation there are 2,095 acres of state, county, and private land. It is the intent of the NPS to acquire these lands at a determinable time in the future.

5. Mineral Leases

The Knight uranium lease covers 640 acres (less a road corridor) in Unit 23. A denial of lease renewal is now under appeal. Until a final decision is rendered, this tract is recommended for potential wilderness addition designation. If the lease renewal denial is upheld, it will become wilderness. If it is determined that the lease is valid, a renewal is granted, and development takes place, the land would not retain its present primitive condition and would not be recommended for wilderness.

D. NON-WILDERNESS AREAS

The wilderness proposal will not close the recreation area to current uses, rather, it responds to legislated requirements for recreation, reclamation, grazing, mining, and hunting. It is intended to complement the purposes for which the area was created. A total of 816,920 acres, or 55 percent of the recreation area, is proposed to remain in a non-wilderness status.

Existing private recreational developments and existing National Park Service developments necessary for supporting recreational activities are not recommended for wilderness. Additional land area is also excluded to provide for development that may be necessary to meet future recreational needs. All existing mineral leases are excluded from wilderness recommendation. There are currently four such leases totaling 2,880 acres which are outstanding, and one lease of 400 acres which is under appeal for approval.

None of the water surface of the Colorado River or of lakes Mead and Mohave are recommended for wilderness. Nearly all of the water surface is used by boats with motors which is an established and non-acceptable wilderness use. A 300-foot horizontal setback from the high-water line for lakes Mead and Mohave has also been

excluded from wilderness to provide for Reclamation and recreation activities along the shoreline.

Access to all portions of the recreation area is essential to provide for grazing, hunting, general recreational use, and potential needs of the future, as well as for administrative, maintenance, and operational requirements. These road corridors are not being proposed for wilderness status and, in certain instances, additional road corridors were left out of wilderness to assure for the continuation of existing uses consistent with the enabling legislation.

The enabling legislation (P. L. 88-639) for the recreation area states, "The inclusion of Indian lands within the exterior boundaries of the area should not be effective until approved by the Hualapai Tribal Council" (Sec. 3. (a)). Thus the 224,420 acres of Hualapai lands within the recreation area cannot be studied or recommended for wilderness without this approval as they are not under National Park Service administration. It is also highly unlikely that any Hualapai Tribal Council will ever approve relinquishing these lands.

There are 11,900 acres of private land and 2,725 acres of county and state lands within Lake Mead National Recreation Area. Acquisition of these lands is actively being pursued with the objective of eventual federal ownership of all lands within the recreation area boundary. Non-federally owned lands cannot be proposed for wilderness.

Remaining lands excluded from the wilderness proposal are presently used for recreational purposes which are incompatible with wilderness. Many of these areas are crisscrossed by a maze of roads providing access to the lakes or used by four-wheel-drive enthusiasts. Other excluded areas include lands which will continue to be managed for reclamation purposes and other uses consistent with the act establishing the recreation area.

E. SPECIAL PROVISIONS

I. Watering Devices

It is recommended that the Congressional Committee reports on the legislation recognize placing wildlife-watering devices within the proposed wilderness as a need which is compatible with wilderness.

2. Reclamation

Congressional designation of lands as wilderness is a long-term, best-use determination to give those lands the protection provided under the Wilderness Act of 1964. Consequently, the National Park

Service can not recommend lands for wilderness if they are subject to future uses which would jeopardize their wilderness character or potentially be a cause for revocation of their wilderness status.

Reclamation projects are, by their very nature, land use activities which substantially lay the imprint of man upon the landscape. Therefore, no lands which are subject to the potential of future reclamation activities can be recommended for wilderness status unless such reclamation withdrawals and reservations are revoked (see Appendix D). Withdrawals for reclamation purposes encumber approximately 96,200 acres of land being recommended for wilderness in this proposal.

The preliminary wilderness proposal presented herein, has been prepared following a 3-year study by the Bureau of Reclamation for the purpose of identifying potential power sites within Lake Mead National Recreation Area. While the areas proposed for wilderness designation do not include lands identified by this study for possible future use for reclamation facilities, it is recognized that future events could indicate needs for additional facilities which are not foreseen or anticipated at this time. Such future need was recognized by the Act which established the Lake Mead National Recreation Area (P. L. 88-639) as follows:

"Establishment or revision of the boundaries of the said national recreation area . . . shall not . . . affect the validity of withdrawals heretofore made for reclamation or power purposes. All lands in the recreation area which have been withdrawn or acquired by the United States for reclamation purposes shall remain subject to the primary use thereof for reclamation and power purposes so long as they are withdrawn or needed for such purposes."

Since wilderness is an area which is to remain undeveloped, the National Park Service proposes to recommend that legislation designating wilderness at Lake Mead state that within the Lake Mead wilderness the primary purpose shall be its preservation for use and enjoyment as wilderness until such time as other uses are permitted by subsequent legislative action as provided for in Section 3(e) of the Wilderness Act, P. L. 88-577.

The National Park Service also recommends that the Congressional Committee reports on the legislation recognize the need for the continued use, maintenance and future modification of the tunnel system within any designated wilderness in the vicinity of the River Mountains on the west side of Lake Mead.

3. Mineral Leasing

By passage of the enabling act for Lake Mead National Recreation Area (P. L. 88-639), Congress authorized mineral leasing within the

recreation area (Section 4.6.3) at the discretion of the Secretary of the Interior, subject to such limitations, conditions, or regulations as the Secretary may prescribe. This authority would not be abrogated on lands designated as wilderness within the recreation area by Congress.

By their very nature, the works and activities of man in a mineral extraction activity are in direct conflict with wilderness values. It is difficult to visualize the Secretarial limitations, conditions, or regulations which could serve to protect wilderness and natural values and still remain reasonable and not unduly restrictive on mining or petroleum development. With this ambiguity in mind, it is doubtful if the Secretary would grant mineral or oil and gas leases, involving surface occupancy and facility development, on Congressionally designated wilderness lands. Congress, however, can remove this ambiguity in the wilderness legislation by specifically stating that the primary purpose of the designated wilderness is its preservation for use and enjoyment as wilderness.

F. INTERRELATIONSHIPS, WITH OTHER PLANS AND PROPOSALS

I. Grand Canyon Adjacent Lands Study

Grand Canyon National Park was expanded by the Grand Canyon National Park Enlargement Act passed January 3, 1975 (P.L. 93-620) (16 U.S.C. s 228a et seq.) in order to consolidate most of the geographic areas known as the Grand Canyon. Recognizing the potential park value of other adjacent areas, including the tributary canyons of Parashant, Andrus, Whitmore, and Kanab Canyons as well as the Shivwits Plateau, the House Committee of Conference directed the Secretary of the Interior to study these areas to determine if they, or any part of them, qualify for national park designation. This evaluation is now being made by the National Park Service, Bureau of Land Management, and Forest Service. No deadline for completion is specified in the House Conference Report.

The areas within Lake Mead National Recreation Area currently being studied are Parashant, Andrus, and Whitmore Canyons and the Shivwits Plateau. For purposes of the Lake Mead wilderness study, current land uses, as specified in the enabling legislation, were adhered to in making decisions on wilderness unit designations. The issue of resolving the question of further Grand Canyon boundary adjustments is complex, and is not expected to be resolved prior to completion of the wilderness study for the recreation area.

2. Grand Canyon Wilderness Recommendation

The wilderness recommendation for Grand Canyon National Park is being readied for submission to Congress. Primitive areas within

Grand Canyon National Park which are adjacent to the recreation area, and which are also being proposed for wilderness designation, were taken into consideration during the development of the Lake Mead wilderness proposal. The areas are contiguous and form a contiguous unit of primitive lands extending eastward from the Grand Wash Cliffs to the Pine Mountains.

3. Lake Mead Boundary Revisions

The National Park Service is proposing to adjust the boundary of Lake Mead National Recreation Area. The areas under consideration are not of wilderness quality, and have been excluded from further wilderness consideration.

4. Lake Mead Natural Resources Management Plan

The Natural Resources Management Plan for Lake Mead National Recreation Area includes an approved road system for the recreation area. The plan identifies access routes, recreational roads necessary for the administration of the recreation area. The wilderness recommendation does not propose closing any of these roads, and does identify roads necessary for recreational access or sustaining grazing operations.

5. Bureau of Land Management - Wilderness Studies

The Bureau of Land Management offices in Las Vegas, Nevada and St. George, Utah were consulted to identify and locate the areas near the recreation area which will become wilderness study areas as required under the Bureau's new Organic Act. As yet, the Bureau has no definite studies or plans underway.

II. DESCRIPTION OF THE ENVIRONMENT

A. LAKE MEAD NATIONAL RECREATION AREA

I. Purpose

Lake Mead National Recreation Area was formally established by Public Law 88-639 on October 8, 1964. This enabling legislation specifies that the recreation area will be used in the following ways:

SEC. 4. (a) Lake Mead National Recreation Area shall be administered by the Secretary of the Interior for general purposes of public recreation, benefit, and use, and in a manner that will preserve, develop, and enhance, so far as practicable, the recreation potential, and in a manner that will preserve the scenic, historic, scientific, and other important features of the area, consistently with applicable reservations and limitations relating to such area and with other authorized uses of the lands and properties within such area.

(b) In carrying out the functions prescribed by this Act, in addition to other related activities that may be permitted hereunder, the Secretary may provide for the following activities, subject to such limitations, conditions, or regulations as he may prescribe, and to such extent as will not be inconsistent with either the recreational use or the primary use of that portion of the area heretofore withdrawn for reclamation purposes :

- (1)** General recreation use, such as bathing, boating, camping, and picnicking;
- (2)** Grazing;
- (3)** Mineral leasing;
- (4)** Vacation cabin site use, in accordance with existing policies of the Department of the Interior relating to such use, or as such policies may be revised hereafter by the Secretary.

SEC. 5. The Secretary of the Interior shall permit hunting, fishing, and trapping on the lands and waters under his jurisdiction within the recreation area in accordance with the applicable laws and regulations of the United States and the respective States : Provided, That the Secretary, after consultation with the respective State fish and game commissions, may issue regulations designating zones where and establishing periods when no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment.

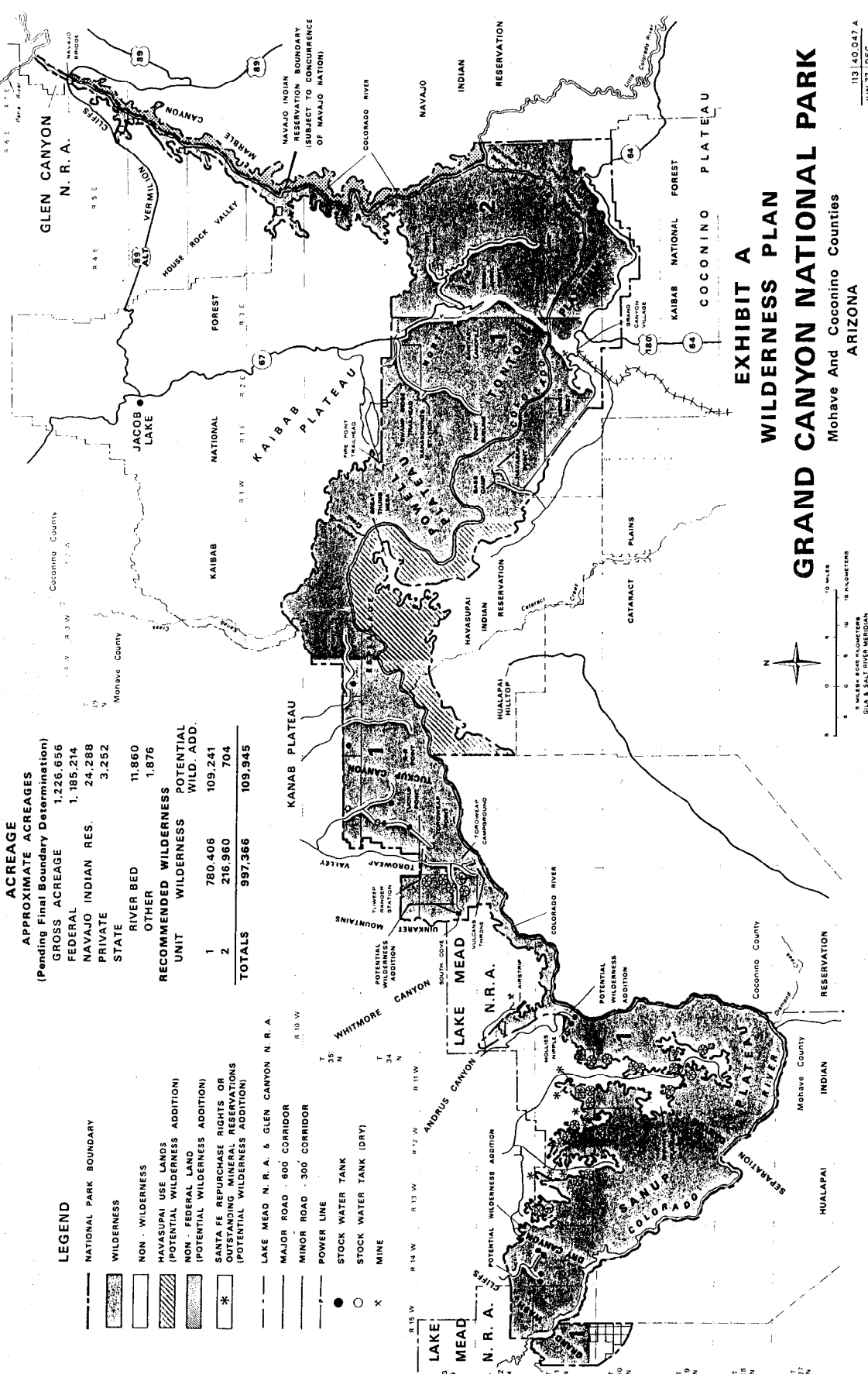


EXHIBIT A **WILDERNESS PLAN** **GRAND CANYON NATIONAL PARK** Mohave And Coconino Counties ARIZONA

2. Access and Regional Setting

Lake Mead National Recreation Area is in southeastern Nevada and northwestern Arizona. It is within 30 miles of greater Las Vegas and within an easy day's travel of the high density population centers of southern California. Cross-country access to the area is via U.S. Highways 93 and 95, which are main spur routes connecting Interstate 40 (Chicago to Los Angeles) with Interstate 15 (Salt Lake City to Los Angeles). Internal access in the western portions of the recreation area consists of a well developed system of graded and paved roads. The eastern portions of the recreation area are reached over graded and primitive dirt roads.

Las Vegas has a full complement of air-transportation facilities as well as railroad and bus terminals. The recreation area headquarters is in Boulder City, just west of Hoover Dam. Kingman, Arizona, is about 30 miles from Katherine at the southern end of the recreation area, and Phoenix, Arizona is less than 250 miles away.

Nearby national attractions include Grand Canyon National Park, Death Valley and Joshua Tree National Monuments, and the Southern Utah Park group. State and local parks, Lake Havasu, and the Lower Colorado River constitute significant interstate attractions as does the entertainment at Las Vegas and the winter-use facilities at Mount Charleston in nearby Toiyabe National Forest. The region immediately surrounding the western and central portions of the recreation area is administered by the Bureau of Land Management and is open to mining, grazing, hunting, and other recreational uses. The eastern portion of the recreation area is abutted by the Hualapai Indian Reservation and Grand Canyon National Park.

Lake Mead National Recreation Area offers the opportunity for a wide range of land and water-oriented recreational activities on two vast reservoirs of fresh water surrounded by a desert landscape of barren mountains and plateaus, deep canyons, and sprawling alluvial fans. A diversity of plants and animals occupy a wide variety of ecosystems within the recreation area and significant historic and archeological resources are also present.

3. Land Classification

The lands within Lake Mead National Recreation Area are classified according to present management and administration into 4 zones and 11 subzones. The wilderness, natural environment, and reservoir subzones cover most of the lands within the recreation area. The Statement for Management, Lake Mead National Recreation Area, 1976, contains detailed land classification descriptions. The recreation area contains 1,496,600 acres which are classified as follows:

Natural Zone

Lands that remain largely unaltered by human activity except for approved developments required for management, use, and appreciation of the recreation area.

Wilderness Subzone

Those lands of wilderness quality which are proposed for wilderness designation or are being managed as wilderness.

Environmental Protection Subzone

This subzone contains two wildlife habitat areas which are of ecological significance within the recreation area. One area of critical habitat for the desert bighorn consists of 13,400 acres that are being managed to perpetuate the habitat. The other area is the Overton State Wildlife Management Area of 10,560 acres. This area is managed under a lease to the State of Nevada to provide suitable habitat for waterfowl.

Outstanding Natural Feature Subzone

Lands being managed for their ecological values, such as areas containing unique geological formations, unique plant communities, and hot springs.

Natural Environment Subzone

Lands managed for environmentally compatible recreation activities based upon and protective of the natural environment.

Historic Zone

Historic Subzone

Areas of local and regional historic significance which are worthy of protection and interpretation.

Archeological Subzone

This subzone contains areas of known archeological resources and enough surrounding terrain to protect and interpret those resources.

Development Zone

This zone includes areas where intensive recreation development has substantially altered the natural environment. Development zone

areas are managed to provide the optimum opportunity for visitors to participate in various recreational activities. This zone contains 19 developed areas totaling 26,820 acres.

Special Use Zone

Reservoir Subzone

This subzone includes all water impounded behind Davis Dam in Lake Mohave, and behind Hoover Dam in Lake Mead. National Park Service management is limited to recreational use only. The Bureau of Reclamation manages the same water for flood control, international commitments of water, irrigation, and power generation. There are approximately 175,360 acres of water surface included within this subzone.

Project Lands Subzone

These are approximately 4,093 acres of land which were excluded from the recreation area by the Act of October 8, 1964, to be managed exclusively by the Bureau of Reclamation.

Private Development Subzone

All lands which are privately owned and are being utilized by the owner and managed for development purposes.

Private Lands Subzone

All lands which are privately owned or state owned, and which are open space and being managed as such by the owner.

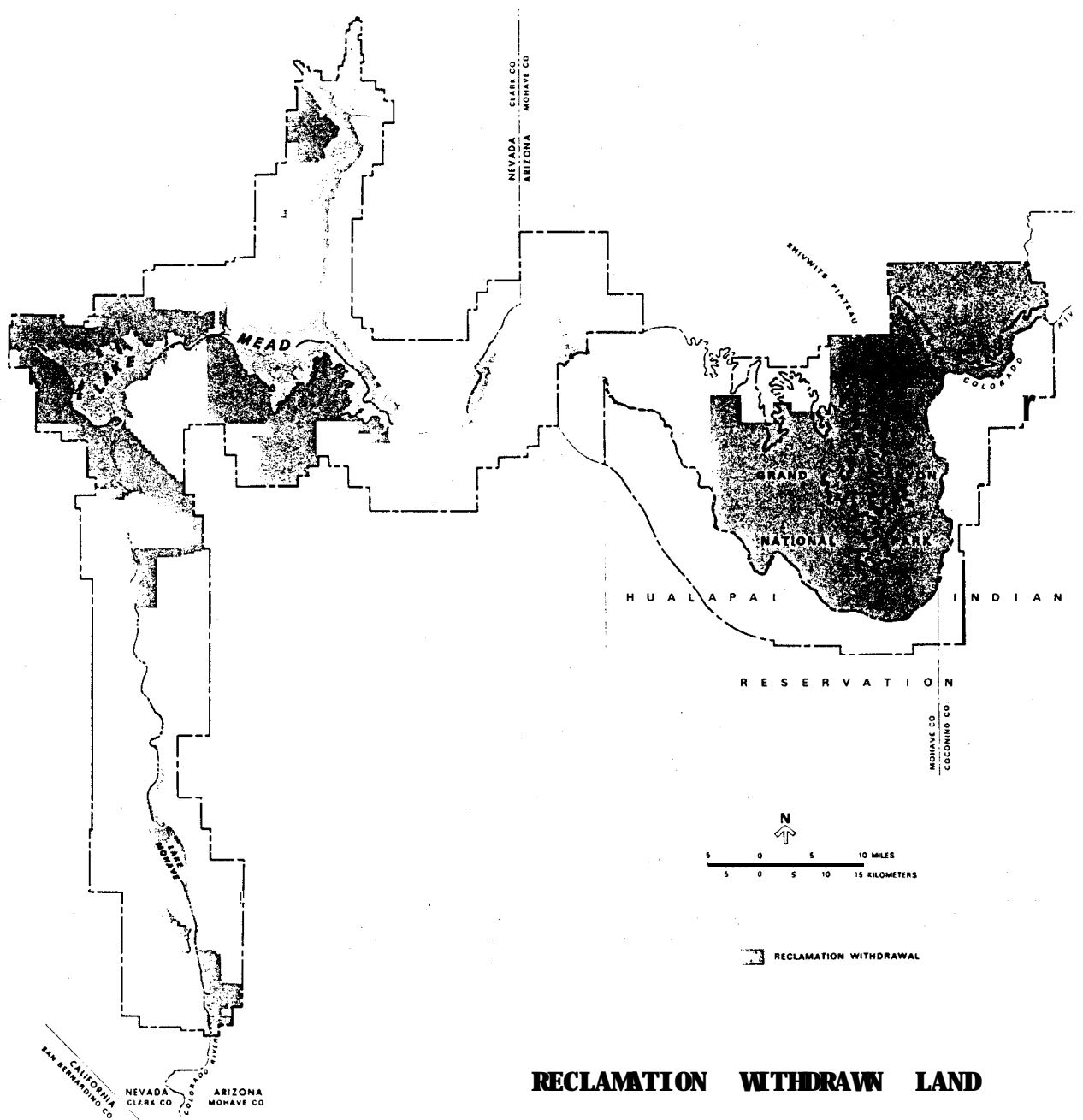
Resource Utilization Subzone

This includes lands being actively used for prospecting or mineral extraction under lease. Mineral repurchase rights remain in private ownership on certain sections of the Shivwits Plateau portion of the recreation area in Arizona, and livestock grazing is permitted throughout the recreation area.

4. Land Use

a. Reclamation

The Bureau of Reclamation currently has withdrawals on about 20 percent of the land area of Lake Mead National Recreation Area. These lands are located in areas most likely to be used for potential reclamation purposes such as power generating facilities, transmission lines, pipelines, service roads, and the like. Approximately 4,093 acres are withdrawn for administration of Davis and



RECLAMATION WITHDRAWN LAND

LAKE MEAD
NATIONAL RECREATION AREA
ARIZONA-NEVADA

Hoover Dams. A 300-foot-wide management zone has been withdrawn landward from the high-water line of lakes Mohave and Mead. Except for developments in the vicinity of the dams, the use of this strip of lakeside land for reclamation has been negligible.

Under Section 2 of the enabling legislation, all of Lake Mead National Recreation Area is subject to use for reclamation purposes. Many existing powerline transmission corridors are not completely included within the boundaries of existing withdrawals, and 160,190 acres have been designated by Reclamation as having high potential as pumped storage sites, although withdrawals for reclamation purposes had been revoked in 1971.

The Southern Nevada Water Project, including the Alfred Merritt Smith Water Treatment Facility, is within the recreation area. The first stage of the project was completed in 1971, and the second stage is projected for completion in 1980. The second stage will double the present daily capacity of 200 million gallons and will divert an average of 166,800 acre-feet of water from Lake Mead each year. This project supplies water to the rapidly growing area of Las Vegas, North Las Vegas, Henderson, and Boulder City.

b. Recreation

Lake Mead is 115 miles long, has 229 square miles of water surface and over 550 miles of shoreline. Lake Mohave is 67 miles long, has 45 square miles of water surface and over 250 miles of shoreline. Most of the recreational use of the area is oriented toward these two large bodies of water. Visitation to the area has climbed from 2.25 million in 1960 to more than 6.5 million in 1977. This rate is expected to continue into the foreseeable future, paralleling the rate of population increase in southern California and southern Arizona.

The most popular recreational activities are boating, fishing, camping, swimming, and water-skiing. During the last decade there has been a shift away from the more passive recreational pursuits, such as fishing and houseboating, toward the more active water-skiing, hot boating, scuba diving, and sailing. Many houseboats now tow one or more small craft for these purposes. Requests are increasing to establish water-skiing courses by individuals and clubs within the area. Water sports, in general, seem to be on the upswing. Hot boat races, endurance and speed skiing races have become a yearly program with the local ski clubs and applications are increasing from special use groups to have annual races, regattas, derbys, and enduros.

Except for the extremely cold water in the upper section of Lake Mohave, the two lakes are ideal for swimming most of the year. Scuba diving is becoming an increasingly popular activity, and

courses are being held by the University of Nevada within the recreation area.

Fishing occurs throughout the year on both lakes and is by far the most popular activity. Senior citizens enjoy the recreation area during the cooler months of the year. Trout and bass are the most sought after fish for both the onshore and the boating anglers. While both lakes provide good fishing opportunities and catches, there has been a noticeable decline in black bass catches in the past few years. Fluctuating reservoir levels have not been timed to provide an ideal habitat for black bass reproduction, and striped bass dominate the bass fishery.

Development facilities and visitor use are heavily concentrated along the shorelines of the lakes in the immediate vicinity of the area's concession operations. These recreational resort centers provide lodging, food service, trailer parks, stores, marinas, and a number of other visitor services. Major concession operations are accessible by paved road and are located at Cottonwood Cove, Katherine Landing, Temple Bar, Willow Beach, Callville Bay, Echo Bay, Overton Beach, Las Vegas Wash, and Boulder Beach. Use of Lake Mead in the Boulder Basin area is reaching near capacity, and increased use of the upper end of the lake in the Pierce Ferry and South Cove areas can be expected, as well as increased use of Lake Mohave.

Boulder Beach, Katherine Landing, and Cottonwood Cove are the area's major day-use and camping centers. Callville Bay and Las Vegas Wash are heavily used for water-based recreation. The Virgin Basin, Overton Arm, and more remote portions of Lake Mead receive substantially less use. River running groups through the Grand Canyon use Pierce Ferry, South Cove, or Temple Bar as exit points.

All campsites, except for concessioner-operated trailer campgrounds, are provided and managed by the National Park Service. There are more than 1,400 Class A campsites in the recreation area with vehicle access, paved parking areas, modern sanitary facilities, picnic tables, and fireplaces. The small campgrounds at Callville Bay and Echo Bay receive little use; however, the 1,374 Class A sites in the rest of the recreation area receive heavy use during seasonal and holiday periods. The recreation area also has more than 3,000 undeveloped primitive camping locations, the majority of which are between the lakeshore and the high-water line. An increasing number of chartered buses are arriving in the area from southern California, bringing groups of up to 200 people for tent camping and water-oriented recreation.

Many visitors arrive driving or towing off-road vehicles or motorcycles as part of their camping equipment, and off-road use is difficult to confine to designated trails and areas.

Recreational use of the backcountry is extremely light when compared with developed area and lake use. Cross-country hiking to explore the wilderness of the area's mountains and canyons is the major non-water oriented activity during the cool months of spring, fall, and winter. Because of its higher elevation and thus cooler temperatures, the Shivwits Plateau receives some summer camping and hiking use. Backcountry camping is being tried by more visitors each year. Specific data are not available on the number of visitors engaging in backcountry hiking, camping, sightseeing, mountain climbing, or rockhounding.

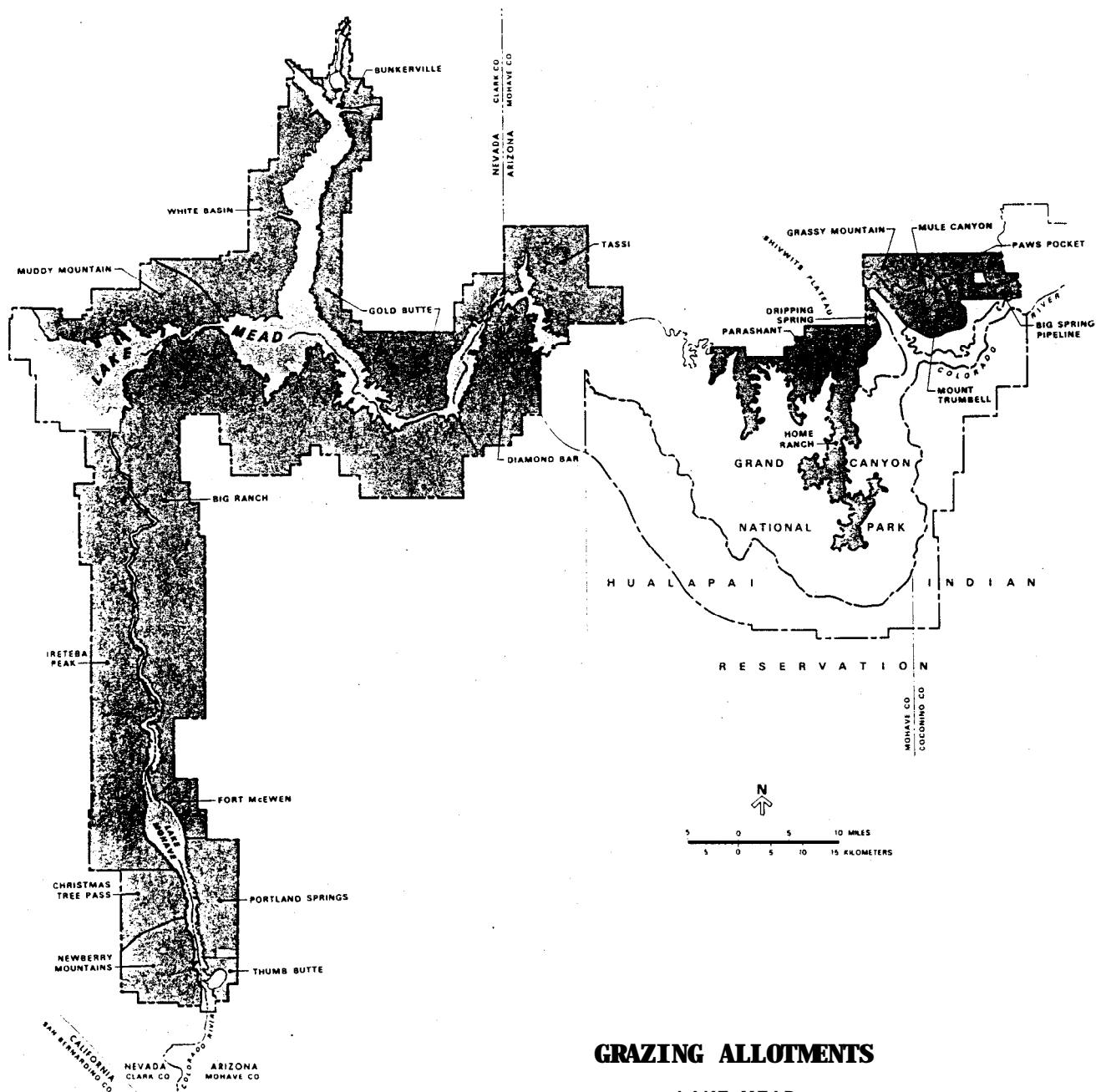
Hunting is permitted in most sections of the recreation area. As specified by the enabling legislation for the recreation area and in the Wilderness Act of 1964, hunting is an acceptable use in wilderness areas of national recreation areas. An estimated 4-5,000 hunter-days are spent in the Overton Wildlife Management Area hunting waterfowl, and 400-500 hunter-days are expended on the Shivwits Plateau hunting mule deer. Desert bighorn hunting under permits issued by the states of Nevada and Arizona account for about 200-250 hunter-days per year.

C. Grazing

Nearly all of the suitable land within the recreation area has been grazed by livestock at one time or another, since about 1860 when Mormon ranchers first drove large herds through the area. Where there is suitable terrain and vegetation, and where water can be made available, this land use has continued following creation of the recreation area. Early grazing practices were not controlled, and severe overgrazing almost completely eliminated native grasses in many areas and their replacement by desert shrubs.

Historically, there has been an agreement between the National Park Service and the Bureau of Land Management that properties not being directly utilized for Lake Mead recreational activities can be used for cattle grazing. As a result, fully 80 percent of the recreation area's land base is subject to livestock grazing under leases issued by the Bureau of Land Management and approved by the National Park Service. As livestock grazing was practiced prior to the establishment of the recreation area and is directly authorized by statute, the presence of grazing livestock within wilderness units would be an acceptable use.

The grazing allotments shown on the accompanying map are not established along political boundaries. Because of this, and a lack of boundary fencing around the recreation area, domestic livestock, feral burros, wild horses, desert bighorn, and mule deer roam freely in search of suitable watering sites and vegetation. The following is a list of the number of acres in each allotment which



GRAZING ALLOTMENTS **LAKE MEAD** **NATIONAL RECREATION AREA** **ARIZONA-NEVADA**

are within the recreation area, the type of grazing allowed, and the maximum number of animal unit months (AUMs) which can be permitted in favorable years in areas grazed under a perennial system.

<u>ALLOTMENT</u>	<u>EPHEMERAL</u>	<u>PERENNIAL</u>	<u>AUMs</u>
Diamond Bar	49,400	23,229	400
Big Ranch	288,392		
Fort McEwen	9,697		
Portland Springs	30,360		
Thumb Butte	6,098		
Newberry Mountains	35,032		
Christmas Tree Pass	17,143		
I reteba Peak	131,092		
Muddy Mountain	46,094		
White Basin	83,819		
Bunkerville	12,021		
Gold Butte	92,264		
Tasi		25,000	443
Parashant		18,405	327
Home Ranch		108,251	1,782
Dripping Spring		16,033	290
Grassy Mountain		10,571	437
Mule Canyon		19,682	598
Mt. Trumbell		15,815	506
Paws Pocket		7,897	486
Big Spring Pipeline		13,770	804
	<u>801,394</u>	<u>258,653</u>	<u>6,363</u>

The Bureau of Land Management utilizes an ephemeral grazing system for most of the lands under grazing allotment within the recreation area. In general, these are areas receiving less than eight inches of precipitation each year, lands below the 3,200-foot contour line, and lands on which only a minor percentage of the total plant composition is made up of desirable perennial forage plants. Ephemeral range does not consistently produce forage, but periodically provides annual vegetation suitable for livestock grazing. In years of abundant moisture and other favorable climatic conditions, a large amount of forage may be produced. Favorable years, however, are unpredictable, and the season is almost always short.

Livestock are placed on the range only when the potential for ephemeral forage exists, or after it is available. In response to, or in anticipation of, an ephemeral grazing application, a BLM range conservationist examines the allotment to determine the potential for production of adequate forage to support livestock. The carrying

capacity estimate (measured in animal unit months or AUM's) is based on 50 percent of the anticipated forage production, the remaining 50 percent is reserved for wildlife use, watershed protection, and seed production.

Livestock grazing within the recreation area is normally light and far below the number of animal unit months available for each allotment because of the lack of grass cover and water to support substantial herds. Grazing pressure is normally heaviest around stock tanks and in lowlands with relatively flat terrain where access is available over established roadways to haul water, feed, and livestock as well as equipment for construction and maintenance of stock tanks. These lands are generally not suitable for wilderness designation because they either support substantial recreational use, vehicular use, development use, or are immediately adjacent to areas which do. Most of the proposed wilderness units are composed of rugged and arid topography, and are unsuited to grazing operations. Roads, and tanks or water pockets found to be needed to support current grazing operations and requiring road access for maintenance are not included in units being proposed for wilderness designation.

d. Mining

Nearly all of Lake Mead National Recreation Area has been prospected. The recreation area was closed to mineral entry because of withdrawals for reclamation purposes. However, an unknown number of mining claims were filed prior to reclamation withdrawals, and claims exist on lands that were not withdrawn. By passage of Public Law 94-429 September 28, 1976, Congress called for the adoption of regulations to control mining activities within units of the National Park System. Section 8 of the Act requires all persons holding unpatented claims to record them with the area's Superintendent by September 28, 1977 or the claim will be presumed abandoned. There have been no unpatented claims recorded with the Superintendent of Lake Mead within any of the proposed wilderness units.

The Katherine Mine is a patented claim within the recreation area, and is about three miles northeast of the Katherine Landing development. The mine is inactive and the land has been subdivided for residential homesites. About 20 dwellings have been constructed, and access is maintained via the National Park Service's road to the Katherine vacation cabin sites.

The act of October 8, 1964 (Public Law 88-639; 78 Stat. 1039) provides for mineral leasing within Lake Mead National Recreation Area, subject to limitations, conditions, or regulations prescribed by, and at the discretion of, the Secretary of the Interior, to such extent as will not be incompatible with recreational use or the primary use of areas withdrawn for reclamation purposes.

At the present time there are 2,880 acres in four mineral leases (one tungsten, one gold and silver, and two for oil and gas) outstanding in the recreation area, and one 400-acre lease under appeal for renewal. The locations of these leases are shown on the preliminary proposal map.

All existing mineral leases and valid mining claims have been excluded from being proposed for wilderness. All leases which are under application but pending, and which otherwise fulfill the criteria for wilderness, have been recommended as potential wilderness additions.

National Park Service policy is that privately owned lands or lands on which there are privately owned interests are not recommended for wilderness, unless acquisition of such lands or interests by the United States is assured. The Shivwits Plateau and certain lands east of Lake Mohave are burdened by mineral reservations and railroad repurchase rights retained by Santa Fe Industries, as indicated on the preliminary map. It is the intent of the National Park Service to acquire these outstanding reservations and rights.

B. CULTURAL RESOURCES

I. Archeological

The archeology of the Lake Mead area is not well known. There have been a number of surveys and excavations but the nature of the archeological record and project-specific approach to the prehistoric resources have not facilitated a comprehensive interpretation. Physical remains range from small surface pueblo sites in the Virgin and Muddy River Valleys to deposits in cave shelters and extensive lithic scatter on bajada slopes.

Man inhabited the Tule Springs-Lake Mead area some 11,000 to 13,000 years ago. As climatic conditions changed, these early large-game hunting people turned to smaller game and plant gathering. This new adaptation to the changing environment has been termed Desert Culture. In true desert country such as Lake Mead, this culture persisted until after the advent of non-Indian exploration and settlement. This adaptation became widespread and was the base for development of succeeding cultures.

The Basketmaker Culture apparently developed from the earlier Desert Culture base. The basketmakers lived from northern New Mexico and adjoining parts of Colorado, through northern Arizona, southern Utah, and into southern Nevada. So named for elaborate basketry found in dry caves of the area, these early people lived by hunting and gathering food. They lived in caves or temporary shelters and later in pit houses. Basketmakers lived at a number

of locations within the Lake Mead area including the lower Virgin and Muddy River, Willow Beach, below Hoover Dam, and Gypsum Cave.

As the Basketmaker people became more and more dependent 'on farming, old Desert Culture patterns of hunting, gathering and mobility gradually changed to a sedentary farming life. Permanent houses and villages, and a new way of exploiting the environment replaced early life patterns. Impetus for this development came from the village-dwelling Anasazi Culture, centered in the Four Corners area. The Basketmakers, and their Anasazi descendants living in the Virgin and Muddy River Valleys, developed a specialized way of life based on farming. They turned oasis-like river valleys into productive farmlands.

Around A.D. 1100 there seems to have been a slight decrease in population and within fifty years, they had abandoned the land. Meanwhile, Shoshonean speaking people, ancestors of the Paiutes who had retained the old Desert Culture way of life, came into the valleys. Ruins along the Overton Arm are the remnants of this vanished culture.

For hundreds of years, Willow Beach, a campsite on the Colorado River, functioned as a crossroads for Indians who exchanged trade goods between the Southwest and Pacific Coast regions. Pueblo-dwelling farmers from the Virgin Valley, and the less-sedentary Hakataya people from the mountains and desert east of the river came to meet another Hakataya subgroup from west of the river, the Amacavas, the middle men who exchanged Pacific Coast sea-shells, steatite, and asphaltum, for salt.

The Hakataya culture took on two distinctive patterns. The Cerbat branch, named for the Cerbat Mountains, followed the Desert Culture lifestyle. Hakataya people such as the Amacava, and their descendants the Mohaves, farmed the rich bottomlands. During the off-seasons, they hunted and gathered plant resources in the nearby desert. After A.D. 1100, these peoples stopped visiting the Willow Beach area, leaving as sole inhabitants the Shoshoneans with their distinctive pottery and projectile points.

The Yuman speaking Mohaves, who continue to inhabit the lower Colorado, lived an informal and casual life in early historic times. The river provided fish as well as rich topsoil for farming. These people grew corn, beans, squash, gourds, tobacco, and sunflowers. The Mohaves seldom ventured into the mountains for food supplies. Although noted as a loosely organized people, the Mohaves spent a great deal of effort promoting warfare. Their lifestyle changed only when the Federal Government placed them on reservations in the late 1800s.

The southern Paiutes also lived in this area. Their way of life demonstrated a near perfect ecological adaptation to the, desert environment. The Shoshonean-Paiute way of life was essentially that of the earliest Basketmakers and of the Desert Culture, one based upon a nomadic existence.

Once non-Indian exploration and settlement occurred in the Southwest, military defeat resulted in the native peoples being relegated to reservations. The Paiutes, Mohaves, and others eked out a living on the reservations or worked on ranches and mining camps.

The earliest scientific excavations in the area were done by M. R. Harrington and Irwin Hayden during the 1920s and 1930s in the Virgin and Muddy River Valleys where they investigated some 123 small pueblo and pit house sites. A stratified campsite at Willow Beach was excavated in 1936 by M. R. Harrington, continued by G. C. Baldwin in 1947-48 and completed by A. H. Schroeder in 1950. In 1947, Baldwin excavated several sites between Willow Beach and Cottonwood Island. James Maxon excavated a cave shelter in Grapevine Canyon during 1969-1970.

Several archeological surveys have been done in the Lake Mead National Recreation Area. These surveys have been quite recent and are related to construction or land exchange projects. Some of these projects were quite small in extent (Bondley and Brooks, 1973; Brooks and Sedgewick, 1971; Brooks, Larson and York, 1974; Dodge, 1975; King, 1976; Morehead, 1975; Quinn, 1975 and 1976). Others include a survey around Fire Mountain in Nevada (Quinn, 1976a) and a survey east of Katherine and southeast of Bullhead City in Arizona (Curriden, 1977). Thus, a major E.O. 11593 archeological survey at Lake Mead is still a prime consideration. Although a parkwide archeological inventory is needed, available information indicates the presence of at least 500 sites near or within the proposed wilderness units. Most of the units have not been surveyed and it is likely that many additional undescribed sites exist.

The type of materials one might find in the proposed wilderness areas would be lithic scatter, broken pottery, petroglyphs on boulders, mescal pits, and stone circles. The bajada slopes seem to have been used to collect lithic material, for temporary camps, and for passage between mountains and rivers. There are petroglyphs and cave shelters which were used by other prehistoric and ethnographic groups in the hills, but the total range of archeological sites for the more remote areas is unknown.

The National Register of Historic Places in the Federal Register for February 7, 1978, and supplements have been consulted, and to date, no archeological sites or structures have been listed within Lake Mead National Recreation Area.

2. Historic

To date, no comprehensive interpretative history of the Lake Mead area has been written, but a brief survey of its rich past shows that it spans four centuries from the earliest Spanish explorations to mass recreation at this oasis in the 1970s. The first non-Indian explorer to visit this region and encounter the Mohaves may have been Hernando d'Alarcon, a member of Coronado's 1540 expedition. Other contact with the Indians resulted from the expeditions of Fray Francisco Garces (1776); Silvestre Velez de Escalante (1776); and the Mountain Man, Jedediah Smith (1827). Two years later Antonito Armijo traversed this region on his way from Santa Fe to Los Angeles, establishing what was to become known as the Old Spanish Trail. In 1830 an expedition, which covered the entire route of the Old Spanish Trail, was led by George C. Young and William Wolfskill.

The later efforts of the U.S. Army helped open up this country. The military sponsored a number of expeditions geared to collect various types of data. Captain John C. Fremont and his expedition camped at the Las Vegas Springs in 1844. Not long after the Southwest territories were brought under the control of the United States, the Army sent Captain Lorenzo Sitgreaves to explore this area. The party reached the vicinity of the present recreation area in November 1851. Two years later the military sent Lieutenant A. W. Whipple to survey railway routes across the Southwest. And in 1857, Lieutenant Joseph C. Ives set out to explore the Colorado River. His party, which included geologists, botanists, zoologists, topographers, meteorologists and artists, provided one of the first careful and complete descriptions of the Lake Mead country. The two John Wesley Powell expeditions in 1869 and 1871-72 resulted in much scientific information pertaining to the Colorado River area.

Mormon missionaries established a settlement at Las Vegas in 1855 and abandoned it by 1857 as an unprofitable enterprise. A few ranches were later established in Clark County, and mining began in earnest during the Civil War.

In the late nineteenth century, a number of Mormon and non-Mormon farm settlements sprang up in this territory and were linked to the outside by steamboats and crude roads. Many of the small communities once located at strategic river crossings now lay beneath the impounded waters of Davis and Hoover Dams. These communities included Callville, Rioville, St. Thomas, Bonelli's Ferry, Scanlon Ferry, Pierce Ferry and others. Some of these hamlets were serviced by the paddle-wheel steamboats that struggled upriver. For many years, steamboats up to 175 feet in length and gross tonnages in excess of 200 tons negotiated the sandbars and rapids of the river. Significant artifacts of that period are by ringbolts and eyebolts at Ringbolt Rapids. Another

form of early transport of which some evidence remains extant were the crude wagon roads, some of which cut into the face of sheer cliffs. While much of this road network has been inundated, traces of early roads can be seen in the Pinto Valley and along the old Mormon "Scanlon Dugway."

In the late nineteenth and early twentieth centuries, the lure of precious minerals such as gold and silver drew numerous prospectors to this region. Near the present Davis Dam, a mine complex known as the Homestake proved a profitable venture. A mill and landing that served the town of Searchlight lie beneath Lake Mohave but the abandoned grade of the Quartette Mining Company's railroad can be hiked. In the El Dorado Canyon district eager miners dug a number of pits. Several of these mining camps still exist, although located on patented land. The major mining district in the region was located near Nelsons Landing, a spot now submerged under Lake Mohave. The Techatticup Mine, whose remnants are located just outside the national recreation area boundary, was the area's most significant mine. Extensive mining activity also occurred on the east side of the Colorado near Chloride and smaller camps in the Cerbat locale. Additional mining activity occurred in the area east of Hoover Dam but little exists there except scattered shafts, tunnels, prospect holes and a few foundations. The Anniversary is one of the most significant mines north of Lake Mead. It is in a picturesque canyon a short distance west of the "Bowl of Fire." As was the case throughout North America, the mining camps and boom towns developed quickly and died once the ore veins were depleted. In the 1950s the search for more exotic minerals such as uranium began in the Lake Mead region.

In the Lake Mead country, a few remains tell the story of the open range cattle industry. Located on the Shivwits Plateau and areas to the east, a number of cabins are still in use and give testimony to the lonely lifestyle of the cowboy. At Grand Wash, the Tassi Ranch was constructed of salvageable materials left behind by the construction crews at Hoover Dam.

The Federal Government forever altered the appearance of this region when the Six Companies completed Boulder Dam, now known as Hoover Dam, in 1935. Original roads and wagon trails, town-sites, ferry landing and steamboat landings, mining camps as well as their ancillary structures and numerous prehistoric sites were slowly covered by the rising water impounded behind the dam.

Hoover Dam itself possesses great historical and engineering significance, and is under the jurisdiction of the Bureau of Reclamation. Near the dam on National Park Service land are the abandoned remains of the 1930s U.S. Government Railroad with five existing tunnels. At Pierce Ferry, the Civilian Conservation Corps operated a facility in the 1930s.

The historical record is even more sketchy than the archeological one. Although a number of articles, popular histories, dissertations, and monographs deal with separate components of the Lake Mead story, nothing of a comprehensive nature has been prepared. The National Park Service will fund a major historic resource study to fill this gap to strengthen planning and interpretive data, as a part of the General Management Plan scheduled for FY 78. Two E. O. 11593 surveys have been conducted: Ross Holland, 1972, and Gordon Chappell, 1976. Both Holland and Chappell have identified a number of sites, some of which appear to meet the eligibility Criteria of the National Register of Historic Places. Park Service historian James Mote conducted a site specific survey at Overton Beach in 1975.

No historic sites or structures within Lake Mead National Recreation Area are listed in the National Register of Historic Places as published in the Federal Register of February 7, 1978, and its supplements. Comprehensive Executive Order 11593 surveys have not been completed; however, the Western Regional Office of the National Park Service is currently evaluating the following properties for possible nomination in the National Register.

The Homestake Mine ruins near Davis Dam.

The Quartette Mining Company Railroad grade between Searchlight and Cottonwood Landing.

The cables, catwalk, and trail at the Willow Beach Gauging Station on Lake Mohave north of Willow Beach.

Remnants of the 19th century steamboating era on the Lower Colorado River at Ringbolt Rapids.

The Pinto Valley wagon road.

The Mormon "Scanlon Dugway," "Dugway Associated Road," or "Greggs-Scanlon Road" in the Scanlon Wash area. Some portions are outside of the recreation area or underwater.

The abandoned grade and five tunnels of the U.S. Government Railroad near Hoover Dam.

The seismograph and power station at Pierces Landing.

The reputed Powell Expedition inscription on the summit of Mount Dellenbaugh.

The Dinner Pocket, Pine Valley, and Waring Ranch cabins on the Shivwits Plateau.

A concrete and stone ruin along the Eldorado Canyon paved road just inside of the recreation area.

Formal contact has been made with the Arizona and Nevada State Historic Preservation Officers concerning these properties, and their replies will be available in the final environmental impact statement for this proposal.

C. NATURAL RESOURCES

I. Climate

Because of the different topographical features and elevation differences, there are a variety of climates present in the Lake Mead region. The lower elevations along the Colorado River and the broad valleys between mountain ranges have an arid climate typical of the Mohave Desert. Precipitation is low, averaging only 3 to 5 inches per year. Humidity is also low and averages about 28 percent. Winters are mild, with daily temperatures in January ranging between 32° and 55°F on many days and an average July maximum temperature of nearly 105°F. Evaporation rates are extremely high, and exceed 80 inches per year at the surface of Lake Mead.

Most of the precipitation occurs during the winter months and during July and August. There is a period of about two weeks every summer when warm, moist, tropical air dominates weather conditions in this area. This causes higher than average humidity and scattered thundershowers which cause flash-flooding with rapid runoff and severe erosion and minimal penetration of moisture into the soil. Precipitation during the winter is usually from regional storms of low intensity and longer duration. Snow is infrequent at these lower elevations, averages less than 2 inches per year, and rarely persists on the ground for more than a day or two.

Elevation has a marked effect upon climatic conditions. Precipitation increases and temperature decreases toward the higher elevations of the area and the climate becomes more semi-arid and steppe-like. Above elevations of about 5,000 feet, the temperature averages about 10°F cooler than the lowlands. Summer temperatures on the Shivwits Plateau have average highs in the 90's and lows in the 60's. Winter temperature may drop as low as -10°F. Snow may fall at any time between October and April with total yearly amounts averaging between 18 and 33 inches above elevations of 5,000 feet.

Clear weather is the hallmark of the Lake Mead region. The Sierra Nevada act as effective barriers to moisture-laden storms moving eastward from the Pacific Ocean. Consequently, dark, overcast, and rainy days are held to a minimum, and average less than one per month in the summer and three per month in the winter. The

area along the lower Colorado River, south of Willow Beach, is one of four places on Earth having more than 4,000 hours of sunshine each year.

The region's climate facilitates year-round recreation at Lake Mead. Beach use and water sports are greatly limited during the winter, but the best lake fishing occurs at this time, and the increase in the number of fishermen tends to offset the decrease in the number of other kinds of recreationists. Hot summertime temperatures tend to discourage backcountry use west of the Grand Wash Cliffs, and most of the summertime recreation in this part of the park occurs on or near the lakes. The cooler climate of the Colorado Plateau, east of the cliffs, tends to favor use of the backcountry in this area during the summer, but physical isolation and poor roads have limited such use.

2. Basin and Range Province

a. Geology

Lake Mead National Recreation Area contains approximately 2,350 square miles of biologically and geologically diversified land and water environments. The Grand Wash Cliffs mark the boundary between the Colorado Plateau Province of the eastern recreation area and the Basin and Range Province of the central and western portions of the recreation area.

The Basin and Range Province is characterized by generally north-trending mountain ranges separated by broad, shallow valleys. Many of these intervening valleys have no exterior drainage and form enclosed basins. The mountains are dissected by deep ravines that open into broad alluvial fans. Commonly, adjoining fans coalesce and form a continuous alluvial apron along the base of the mountains. These slopes extend outward into the valleys where they merge with the valley floor, or extend across the valley to join opposing slopes to form an alluvial divide. The valley floors are usually nearly level and often contain one or more playas, or dry lakes, where silt, clay, evaporites, and weakly cemented gravels have been deposited.

The age of the strata in the tilted, fault-block mountains ranges from Precambrian to Tertiary, while the sediments in the intervening structural basins are all younger than the Mesozoic and consist chiefly of late Tertiary and Quaternary deposits.

Precambrian rocks are exposed in the Virgin Mountains, in the southern part of the Grand Wash trough, along the lower Grand Wash Cliffs south of the Colorado River, and along the floor of Grand Canyon. To the south and west of the mouth of Grand Canyon at the Grand Wash Trough, the mountain ranges are

composed of Precambrian rocks which are locally overlain by volcanic rocks of Cretaceous and early to middle Tertiary age. The Precambrian rocks can be divided into metamorphic rocks, chiefly gneisses and schists, and granitic rocks. The gneisses and schists are locally intruded by pegmatite and alaskite dikes, and are cut by quartz veins. Most of the granitic rocks occur as irregular plutons and represent different ages of plutonic activity.

Paleozoic rocks are not as well exposed in the Basin and Range section of the recreation area as they are in the Colorado Plateau section. West of the Grand Wash Cliffs, the Paleozoic rocks are similar to those on the Colorado Plateau but they are exposed along the upturned edges of tilted fault blocks. South of a line that extends from near Hualapai Wash southeast along the lower Grand Wash Cliffs, the region is essentially devoid of Paleozoic and overlying Mesozoic rocks.

The Paleozoic column comprises a basal sequence of marine Cambrian detrital rocks overlain by a considerable thickness of carbonates of Cambrian through Carboniferous age. Late Carboniferous and early Permian sediments are clastic and in part continental, but the youngest rocks of Permian age reflect deposition in a shallow epeiric sea.

The Mesozoic system is represented in the recreation area by a varied assemblage of sedimentary rocks. They are chiefly continental except for part of the Lower Triassic Moenkopi formation which is of marine origin. In the Basin and Range Province portion of the recreation area, Mesozoic strata are only found north of Lake Mead.

Cenozoic rocks are exposed widely in the central and western portions of the recreation area, and consist primarily of late Tertiary and Quaternary deposits. Older Cenozoic rocks are preserved only as scattered remnants. A sequence of Cenozoic volcanic rocks overlies the Precambrian basement complex in the Hoover Dam-Davis Dam area. In this area, the Oligocene or older Patsy Mine andesites and basalts are overlain by the Golden Door pyroclastic volcanic rocks of acidic to intermediate composition and early to middle Miocene age. These in turn are covered by late Miocene Mount Davis andesites and basalts. Conglomerates and other sedimentary rocks are present in subordinate proportions throughout the sequence. Muddy Creek basin beds of late Miocene and Pliocene age locally overlie the older rocks.

Cenozoic rocks are widespread north of Lake Mead where they are chiefly fanglomerates, fluvial conglomerates, and lake beds. The Thumb formation and the Overton fanglomerate are of late Cretaceous or early Tertiary age. The Overton fanglomerate, which contains allochthonous blocks of extraordinary size, is thought to

represent fans shed from advancing thrust plates of Laramide age. The Horse Spring formation is early to middle Miocene and includes lacustrine and fluvial deposits, including a distinctive assemblage of freshwater limestone, dolomite, magnesite, and tuff. Muddy Creek basin beds unconformably overlie older rocks over wide areas and are also present locally south of Lake Mead.

In the Grand Wash trough, conglomerates, fine-grained deposits, and the Hualapai limestone of the Muddy Creek formation are the dominant Cenozoic rocks. Conglomerate, siltstone, sandstone, and freshwater limestone of the Tassi formation of probable Tertiary age are exposed in one small area several miles north of Lake Mead.

Distributed along the valley of the Colorado River are fluvial and lacustrine deposits which are clearly associated with the river. Such deposits include several generations of moderately cemented gravels, the Pleistocene Chemehuevi lake beds, unconsolidated terrace gravels, and recent channel deposits. The latter are now mostly covered by the impounded waters of Lake Mead. Pediment gravels of probable Pleistocene age are widely exposed in the interfluvies. Basalt flows of Pliocene and Pleistocene age also occupy large areas in the region of the Grand Wash trough and the upper Grand Wash Cliffs. These flows follow drainages which were graded to the Colorado River.

b . Biotic Communities

The classification of biotic communities in the Basin and Range Province portions of the recreation area is based on the natural groupings of plants and animals as described by Bradley and Deacon (1967) in; The Biotic Communities of Southern Nevada. Minor changes in classification result largely from the two major physiographic provinces found in the recreation area and the transition zone between them. Minor transzonal plant and animal communities and similar sophistications can be considered as separate entities, but essentially, they reflect only modifications of the primary ecosystems in the recreation area.

There are three major zones of vegetation within the Basin and Range Province; creosotebush community, blackbrush community, and pinyon/ juniper woodland. The only transzonal community type as described by Bradley (1967) which occurs in the basin and range province is the desert riparian community.

ZONAL COMMUNITY TYPES

Desert Shrub Vegetation Types

The desert shrub complex in the basin and range portion of the recreation area encompasses two distinct community types. The most widespread of these is the creosotebush community which is

generally the most common in all southern deserts of North America. It is locally well developed on lower bajadas, alluvial fans, and playas, between elevations of 500 to 3,500 feet. It may be found occasionally at higher elevations on arid, south-facing slopes. Near the Colorado River, the topography occupied by this community is especially rock and rugged. Soils in this community typically develop on gray alluvium and generally have high salt-alkali contents which often form caliche hardpans. This community has extreme fluctuations of daily and seasonal temperatures and precipitation.

Vegetation cover is sparse in this community and dominated by creosotebush (Larrea tridentata) and bur-sage' (Ambrosia dumosa). Other species common to this community are mormon tea (Ephedra nevadensis), brittlebush (Encelia farinosa), range ratany (Krameria parvifolia), and indigo bush (Dalea fremontii). Following periods of above average precipitation, profusions of annual wildflowers can be observed. Plants such as wild heliotrope (Phacelia crenulata), plantain (Plantago insularis), pebble pincushion (Chaenactis carphoclinioides), and daddleneck (Amsinckia tessellata) can produce a colorful blossom which is striking in this desert environment.

Diurnal lizards and nocturnal snakes are relatively common reptiles in this community. The Gila monster reaches its northernmost range in this area, but like the chuckawalla and the desert tortoise is not abundant. Densities of bird species are low. Gambel's quail, raven desert sparrow, horned lark, roadrunner, and the cactus and rock wrens occur in this community. Five species of bats are common to abundant as are seven species of small rodents. The blacktail jackrabbit and the desert cottontail sometimes become locally abundant. Carnivores such as the coyote, kit fox, badger, and the bobcat are relatively common depending upon the supply of smaller animals. The desert bighorn is a rare and transient visitor to this community.

The feral burro, wild horse, and domestic livestock graze within this community. The creosotebush community is found in varying amounts in all of the proposed wilderness units in the central and western portions of the recreation area. The most extensive stands are found in Units 13 and 14.

The blackbush community is similar but of greater density than the creosotebush community. Although small in total area, it is widely scattered throughout the recreation area occurring at elevations of 3,000 to 4,000 feet. Small isolated stands are occasionally found at higher elevations. The soils of this community are generally more porous, have lower salt contents, are more permeable than the soils of the creosotebush community, and have slightly higher organic contents. Cooler temperatures and short sporadic snowfalls are considered normal.

Plants frequently associated with this community include Joshua tree (Yucca brevifolia), mormon tea (Ephedra viridis), rabbitbrush (Chrysothamnus teretifolius), matchweed (Gutierrezia sarothrae), and flat-topped buckwheat (Eriogonum fasciculatum). While the herbaceous composition is generally the same as the creosotebush community, perennial grasses such as Indian rice grass (Oryzopsis hymenoides) and needle grass (Stipa speciosa) are more abundant.

Reptiles are well represented but are not generally as numerous as in the neighboring community. Sage sparrow, ladder-backed woodpecker, raven, and cactus and rock wrens are the more abundant resident birds. Most mammals that are residents of the creosotebush community also inhabit this community. The desert bighorn sheep is more than a transient here and grazed the upper elevations. Non-native burros, horses, and/or domestic cattle are also more common users. The blackbrush community predominates in parts of proposed Wilderness Units 18 and 19, and it is a secondary community in Potential Wilderness Units A, C, D, F, and J, and in proposed Wilderness Units 5 and 7.

Woodland Vegetation Type

The woodland vegetation complex in the basin and range portion of recreation area is represented by only one community type; the pinyon/ juniper community. This community is widespread throughout the southwestern United States, but is not common to the Lake Mead portions of this province. The Christmas Tree Pass area near the recreation area's southwestern corner is the only area exhibiting this higher growth-form and more complex interrelationship of plant and animal life. It is in a small area approximately 3,200 to 4,200 feet in elevation. The steepness of the upper granitic formations possibly limits the extent of soil formation, thereby restricting vegetative growth to the deeper, more developed sites in portions of the Grapevine Canyon-Christmas Tree Pass area. Generally surrounded by the blackbrush community, this area receives a greater amount of annual precipitation. Typically, it has well-drained soils that are suspected of having a greater organic matter content than occurs in the adjoining desert shrub communities.

The dominant species of plants in this woodland community are the California juniper (Juniperus californica) and the pinyon or single-leaf pine (Pinus monophylla). Gambel oak (Quercus gambelii) and nolina (Nolina bigelovii) are also found in this community. Herbaceous plants are well represented. Desert mariposa (Calochortus kennedyi), Indian paintbrush (Castilleja chromosa), groundsel (Senecio multilobatus) and many others add to a colorful April and May floral display.

Although several species of reptiles can be found, they are not as well represented here as in the communities at lower elevations. Bird species include rock wren, red-tailed hawk, common bushtit, western bluebird, and Gambel's quail. Mammals are well represented. The blacktail jackrabbit and desert cottontail are sometimes found in large numbers, particularly at lower elevations. These two small game mammals, together with Gambel's quail and mourning dove, make this section of the recreation area a major locality for upland game hunting. Several signs and positive sightings of bighorn sheep have recently been made nearby. Although mule deer are generally common to this ecosystem, they are rare within the recreation area. Common carnivores include bobcat, coyote, and gray fox. Mountain lion and badger may be present. Numerous species of rodents can be found throughout this community. Domestic livestock and feral burros have frequented and continue to use this community.

The pinyon/juniper community is found in very limited areas of proposed Wilderness Unit 1 and is absent from all other recreation area lands that lie within the basin and range province.

TRANSZONAL COMMUNITY TYPES

The desert riparian community comprises vegetation in local desert washes that is not dramatically different in growth-form from that of the surrounding desert shrub communities. Plants are comparable, but usually occur in greater density in the desert riparian community. As a result, it is commonly recognized as an extra-zonal, rather than distinct community. Like its Sonoran counterpart, it is scattered like fingers through the landscape. Roadsides appear quite similar to these washes due to the concentration of water from run-off from the pavement surface. Soils are usually silty to sandy, but become quite rocky at the higher elevations. As would be expected, increased subsurface water may be available, allowing the greater densities. Mesquite (Prosopis glandulosa), catclaw (Acacia greggii), desert willow (Chrilopsis linearis), cheeseweed (Hymenoclea salsola), and rabbitbrush (Chrysothamnus paniculatus), along with some isolated salt-cedar (Tamarix sp.) give this community a slightly more developed appearance. On portions of the Colorado River upstream from Lake Mead, ocotillo (Fouquieria splendens) can be found along the edges of this community, which also extends into major laterals such as Whitmore and Andrus canyons.

Faunal species are also quite similar to those of the surrounding communities, the major difference being that they occur more frequently in this community. The sidewinder is a common inhabitat, and desert wood rats are frequently present in this environment because it offers more abundant food and cover sources than do the adjoining communities. These factors also undoubtedly

account for the greater density of desert birdlife found here. Feral burros and domestic cattle utilize this ecosystem. Desert riparian communities are found in all of the proposed wilderness units.

AQUATIC VEGETATION TYPES

The aquatic community complex contains four distinct communities in the recreation area; however, only two of these, the stream riparian community and desert spring community fall within the proposed wilderness units.

The first, the stream community, is limited to the muddy waters of the Colorado River upstream from Lake Mead, and Muddy and Virgin Rivers, as well as to the clear or relatively non-silted lower reaches of Las Vegas Wash and the Colorado River below Hoover and Davis Dams. Extreme variability in the quality of waters exists. Turbidity is a major consideration. Water depths, stream widths, and current vary greatly from the narrow, shallow, rapid waters of lower portions of the Las Vegas Wash through the wide, shallow, and generally slow flow of the Muddy River to the swift, larger, and cooler waters of the Colorado River. Numerous endemic non-game and non-native fishes currently inhabit the community. Carp and channel catfish predominate in muddy waters of the Colorado River. The introduced striped bass and rainbow trout provide a major sport-fishing resource in river waters below Davis Dam. Beaver, muskrat, and soft-shelled turtle are reportedly found in the Virgin, Muddy, and Colorado Rivers below Davis Dam. The river otter is reportedly rare in this community.

No stream communities are included within the proposed wilderness because all are open to the recreational use of motorboats and related motorized vehicles.

Evidence concerning the desert spring community indicates that a larger number of desert spring flowed historically than at the present. A major concentration of active springs occurs on each side of the Colorado River between Hoover Dam and Willow Beach. Petroglyphs, commonly found at localities formerly used by Indians, and/or certain vegetation, indicating greater availability of moisture during earlier periods, tend to indicate prehistoric man's active efforts to manage the meager water supply of this arid country.

Many springs are thermal, and water temperatures vary slightly on an annual basis. Various aquatic plant species can be expected and the peripheries of springs may have a number of sedges (Scirpus, spp.), brushes (Juncus, spp.), and cattails (Typha angustifolia). Cottonwoods (Populus fremontii), mesquite (Prosopis glandulosa), desert willow (Chilopsis linearis), and saltcedar (Tamarix sp.) may

also be found in these mesic soils. Formerly active springs or water encatchments provided greater water availability indicated by the presence of cottonwoods, mesquite, scrub oak (Quercus turbinella), and wild grape (Vitus arizonicus). Saltgrass (Distichlis spicata) and some salt tolerant shrubs (Atriplex and Pluchea) may occur in moist environments such as those found at Rogers Springs north of the Echo Bay development.

Although use of local springs as watering sites by resident and migrant birds may not be as great as during pre-impoundment days, the springs continue to provide considerable shelter for the park's bird populations. Mice, small rodents, and amphibians use these communities to a considerable degree.

Desert springs are found in proposed Wilderness Units 1 and 7, and Potential Wilderness Units F, G, J, and K.

The lake community also contains several variables that could warrant further sophistication of the basic ecological classification. Water clarity, temperature, limnological features and similar considerations have resulted in known variable distributions of game fishes. Upper-most portions of Lake Mead above Iceberg Canyon provide conditions especially favorable to channel catfish. Proceeding downlake, large-mouth bass population increase, particularly in the lower portions of the lake. Scattered concentration centers of black crappie, bluegill, and carp are known to exist near Saddle Island, Ramshead Island, and developed marinas.

Striped bass were initially planted in this lake during 1969; but very large rainbow trout were caught prior to 1969 in the Hualapai Wash area and occasionally in Las Vegas Bay.

Lake Mohave, with its cold upstream water temperatures, 54 degrees to 65 degrees Fahrenheit, has long been known for its excellent fishing. Rainbow trout are planted by the Fish and Wildlife Service directly into Lake Mohave from the Willow Beach Hatchery. The State of Nevada formerly supplemented the Federal Government's efforts and more recently the State of Arizona has been providing state-reared rainbow trout, silver salmon, cutthroat trout, and kokanee salmon. Late each spring, the transition zone between colder uplake and warmer downlake waters provides an extremely vivid rust-to-near-orange display of algae in the Chalk Cliff to Monkey Cove area. A noticeable change in game-fish composition is associated with this six-mile transition zone. As one proceeds downlake into generally slower moving and warmer waters, a transition can be expected from an integrated catch to fewer trout and an increasing number of largemouth bass. However, this significant fact is less noticeable today due to increased downlake stocking of rainbow trout and other salmonids since completion of the Willow Beach Hatchery in 1962-63.

Native species formerly found in both lakes, including the humpback sucker and the bonytail chub, may still be present.

Use of this community by birds is significant. Western and eared grebes, several gulls, egrets, herons, several species of shorebirds, bald and golden eagles, white pelicans, and ospreys are only a few of the 244 bird species reported from all biotic communities of the recreation area. Although not all use the lake community for the basic necessities of food, shelter, or escape cover, most are closely associated to this, the stream riparian, and stream communities.

The beaver and raccoon found in Lake Mohave are the sole mammalian representatives of this community, although river otter and muskrat may possibly use this lake and Lake Mead. Soft-shelled turtle occurs in Lake Mohave.

The stream riparian community is found in Las Vegas Wash, and the Muddy, Virgin, and Colorado Rivers where limited areas of sedimentary delta-like riparian ecosystems, are generally typified by deep siltsands and relatively high organic content and moisture. In addition, limited and scattered shoreline environments of both lakes Mead and Mohave display similar characteristics when lake elevation fluctuations are minimized. Formerly, severe annual fluctuations of 40 to 70 vertical feet occurred on Lake Mead, which precluded the development of shoreline vegetation. Recently, moderate annual high and low water fluctuations of 20 to 35 feet have enabled a stream riparian community to develop along several portions of the lake. In addition to these riparian associations, other conditions exist which support this community. Narrow mesic canyons of the Newberry Mountains contain intermittent flows which support riparian vegetation. Cottonwood (Populus fremontii), willow (Salix gooddingii), desert willow (Chilopsis linearis), cattail (Typha angustifolia), arrowweed (Pluchea sericea), mesquite (Prosopis glandulosa), and the non-native salt-cedar (Tamarix sp.) may exist at both riparian conditions. Sedges (Scirpus olneyi and robusta), rush (Juncus montividentis), monkey flower (Mimulus gattatus), and grasses (Bromus, Polypogon, and Phragmites) can also be found within this community.

Amphibians are represented by the spade foot toad, the red spotted toad, the introduced bullfrog, and possibly by the tiger salamander introduced in larval form as fishing bait. Birds and mammals are also characteristic of surrounding communities. Skunks, beavers, desert bighorns, feral burros, domestic cattle, and coyotes are particularly noticeable in this ecosystem.

Stream riparian vegetation occurs locally in tributary canyons of the Colorado River in proposed Wilderness Units 18 and 19, but is absent in other units.

3. Colorado Plateau Province

a. Geology

The Colorado Plateau Province portion of the recreation area lies east of the Grand Wash Cliffs and north of the Grand Canyon of the Colorado River. It encompasses the southern portion of the Shivwits Plateau, the extreme southwestern portion of the Uinkaret Plateau, and a small inner-canyon platform known as the Esplanade.

Most of the upland plateau is a gently rolling but dissected tableland. A number of lava-capped buttes rise above the general landscape culminating in Mount Dellenbaugh, which at an elevation of 6,990 feet is the highest point in the recreation area. The southern edge of the plateau drops away precipitously toward the Colorado River.

The sedimentary rock column in this section of the Colorado Plateau includes strata ranging in age from Lower Cambrian to Middle Triassic and overlies a basement complex of Precambrian gneiss. The sedimentary formations are nearly horizontal and generally have a dip of less than 5° to the east and northeast.

Most of the faults in this section of the recreation area are high-angle and dip-slip, with some having a scissors movement. Structurally and topographically, this portion of the Colorado Plateau contrasts sharply with the deep structural basins, block-faulted ranges, and tilted blocks of strata which are characteristic of the Basin and Range Province to the west.

This portion of the Colorado Plateau provides a classic example of landscape development in nearly horizontal sedimentary rocks in different resistance to erosion under semi-arid conditions. In general the landscape is composed of five classes of features: (1) steep to vertical-walled canyons developed in resistant strata, (2) beveled surfaces of the inner canyon of the Colorado River where the massive crystalline rocks of the Precambrian and lower Paleozoic carbonate strata have a uniform resistance to erosion, (3) stripped surfaces which are developed on a particularly resistant stratum overlain by less resistant strata, typified by the Kaibab Uplands and the Esplanade, (4) scarps, either erosional or tectonic, such as the Hurricane and Grand Wash Cliffs, and (5) surfaces of aggradation, most notably represented by lava flows, talus, and colluvial slopes.

b. Biotic Communities

ZONAL COMMUNITY TYPES

The Colorado Plateau exhibits four distinct zonal communities and one transzonal community in Units 19, 23, 24, and 25. The

sagebrush community consists mainly of sagebrush (Artemisia tridentata), and rabbitbrush (Chrysothamnus nauseosus), and dominates large portions of the Shivwits Plateau. Other plants frequently associated with these indicators are matchweed (Gutierrezia sarothrae), rubberweed (Hymenoxys richardsonii), cliffrose (Cowania mexicana), Apache plume (Fallugia paradoxa), and in limestone outcrops, century plant (Agave utahensis).

Soils are relatively thicker in this community than in others of this province. Reddish-brown clays and fine silts predominate in ancient Shivwits lakebeds. Porosity is relatively good, except on the depressed areas. The Shivwits Plateau receives snow in a quantity comparable to that in the surrounding pinyon/juniper community. Animal use is limited to native wildlife such as rodents, coyotes, foxes, badgers, cottontails, and blacktail jackrabbits.

Domestic cattle graze extensively on the Shivwits Plateau. Corrals, water tanks, and similar grazing developments are extensive on the plateau, thereby retarding or prohibiting natural vegetative succession. Feral burros are not thought to be especially common in this community. Their use of the Grand Canyon biotic communities is heaviest near the Colorado River, progressively decreasing as the elevation increases.

The most abundant community on the Shivwits Plateau, the pinyon/juniper association extends from Snap Point east to Andrus Canyon. Although pinyon pine (Pinus monophylla) and the Utah juniper (Juniperus osteosperma) are the dominant plants, ponderosa pine (Pinus ponderosa) and the big sagebrush (Artemisia tridentata) stands are scattered throughout this community along major drainage patterns. Therefore, portions of this association may vary considerably, with the typical woodland merging into a forest association of ponderosa pine or an extremely sparse stand of juniper with a dense understory of big sagebrush. Other plants frequently found in this community are Gambel oak (Quercus gambelii), gooseberry (Ribes cereum), squawbush (Rhus trilobata), snowberry (Symphoricarpus longiflorus), and feabane (Erigeron divergens).

The pinyon/juniper and sagebrush communities comprise the major areas used for cattle grazing. The history of past overgrazing on Arizona Strip lands is well known. Mule deer, wild turkey, coyote, badger, pack rat, gopher, field mouse, cottontail, and blacktail jackrabbit, Gambel's quail, redshafted flicker, raven, scrub jay, Oregon junco, white breasted nuthatch, rattlesnakes, and several lizards are some of the resident and transient wildlife.

Colder temperatures and slightly greater precipitation in this community are due to high elevation.

TRANSZONAL COMMUNITY TYPES

Although more extensive areas of the oak woodland are located adjacent to the recreation area (Mt. Trumbell and Oak Grove Hill), some isolated stands occur in areas of limited exposure on the Shivwits Plateau. Soils are extremely shallow, rocky and well drained as the result of the steep, 20 percent slopes on which this association is usually found. Interzonal differences have been noticed: southerly exposures support a sparse stand of Gambel oak (Quercus gambelii) with an impenetrable understory of manzanita (Arctostaphylos pungens), while northern exposures are more diverse supporting in addition to Gambel oak; the New Mexico locust (Robinia neomexicana), ponderosa and pinyon pine, Utah juniper, barberry (Berberis fremontii), and chokecherry (Prunus virginiana).

The exposures in both communities differ dramatically from the generally flat terrain of surrounding lands. Domestic cattle pass through and feed upon this colorful vegetative complex.

Independent of the major zones of vegetation, the sheer cliffs, or vertical portions of the province, are numerous and form rather contiguous barriers between the three primary elevation levels of this portion of the spectacular Grand Canyon--the river, the Sanup Plateau, and the Shivwits Plateau. Soils, vegetation, and wildlife are generally rare in this area. The sole exception is the many caves that have been and continue to be utilized by several species of bats and possibly small rodents. Unsuccessful commercial exploitation of the famous bat or guano mine, located approximately 20 miles above Pierce Ferry, has included developments costing about \$740,000 and construction of extensive cross-canyon cables and cable towers. Bighorn sheep are known to be transient through limited portions of this community, where access occurs to and from lower Basin and Range slopes and communities of the Colorado Plateau province.

Two desert scrub communities, the blackbrush community and the creosotebush community--are dominant over wide areas at lower elevations in the Colorado Plateau province of the park. These communities are similar in structure to those described in the section on the Basin and Range Province; they occur in both Unit 18 and Unit 19.

4. Endangered or Threatened Species

A number of plant taxa are currently proposed for endangered or threatened status by the U.S. Fish and Wildlife Service (Federal Register, June 16, 1978) and by the Smithsonian Institution (1975). Those species occurring in or near the recreation area are:

<u>Arabis gracilipes</u>	Threatened
<u>Arctomecon californica</u> *	Endangered
<u>Astragalus geyeri</u> var. <u>triquetrus</u> *	Endangered
<u>Astragalus lentiginosus</u> var. <u>ambiguus</u>	Threatened
<u>Camissonia parryi</u>	Threatened
<u>Camissonia specuicola</u> var. <u>hesperia</u>	Threatened
<u>Coryphantha vivipara</u> var. <u>rosea</u>	Threatened
<u>Crossosoma parviflora</u>	Threatened
<u>Cryptantha insolita</u>	Endangered
<u>Encelia frutescens</u> var. <u>resinosa</u>	Threatened
<u>Eriogonum viscidulum</u> *	Endangered
<u>Linanthus arenicola</u>	Threatened
<u>Opuntia basilaris</u> var. <u>treleasei</u>	Threatened
<u>Opuntia whippleyi</u> var. <u>multigeniculata</u>	Threatened
<u>Penstemon bicolor</u> ssp. <u>roseus</u>	Threatened
<u>Phacelia anelsoni</u>	Threatened
<u>Rosa stela</u>	Threatened

*Arctomecon californica, Astragalus geyeri var. triquetrus, and Eriogonum viscidulum have been declared "Critically endangered" by a workshop on threatened and endangered plants sponsored by the Fish and Wildlife Service, Forest Service, Bureau of Land Management and the Northern Nevada Native Plant Society in February 1978.

The following animals have been observed within Lake Mead National Recreation Area, and are on the United States List of Endangered and Threatened Wildlife and Plants, as maintained by the Secretary of the Interior:

Brown Pelican	<u>Pelecanus occidentalis</u>	Endangered
Bald Eagle	<u>Haliaeetus leucocephalus</u>	Endangered
Peregrine Falcon	<u>Falco peregrinus anatum</u>	Endangered
Pahranagat Bonytail	<u>Gila robusta jordan</u>	Endangered
Devils Hole Pupfish	<u>Cyprinodon diabolis</u>	Endangered
Humpback Chub	<u>Gila cypha</u>	Endangered
Colorado River Squawfish	<u>Ptychocheilus lucius</u>	Endangered

The Devils Hole Pupfish are maintained in a refugium, fed by waters of the recreation area.

5. Environmental Quality

a. Air Quality

The air quality of the Lake Mead region is generally good, especially in the Colorado Plateau portion of the recreation area.

However, air quality degradation is increasingly evident throughout the lower elevations of the Basin and Range Province. Air pollutants drain into the basin of the Colorado River from all directions, and are of particular concern during periods of atmospheric inversion.

The major existing source of air pollutants within the recreation area is the coal-fired Fort Mohave Steam Generating Plant of Southern California Edison Company located about two miles from the extreme southern park boundary in Clark County, Nevada. Pollution generated in the Las Vegas Basin west of the recreation area drains into the Boulder Basin along Las Vegas Wash. The automobile is the major generator of this pollution; however, the Henderson Industrial Park seven miles to the west of the recreation area provides a local source of industrial pollution from chemicals, metal processing, and cement production. Other regional sources of pollution include the coal-fired power plant at Moapa, Nevada, about 15 miles northwest of the Overton Arm of Lake Mead; several gypsum and some mineral processing plants north of the Boulder Basin; dust from areas where the desert environment has been disturbed; and under appropriate atmospheric conditions, photochemical oxidants from the Los Angeles Basin.

Background air quality data are not available for the recreation area at the present time, and the impact of pollution upon the ambient air quality cannot be quantified. However, a 1973 emissions inventory for Clark County, Nevada carried out by the Air Pollution Control Division of the District Board of Health of Clark County indicates that motor vehicles are the major contributors to air pollution in the county by accounting for 97 percent of the carbon monoxide, 81 percent of the hydrocarbons, and 52 percent of the nitrogen oxide emissions. Power plants discharge 89 percent of the sulfur dioxides and 22 percent of the total particulates. Mobile sources account for approximately 245,000 tons of pollutants in the air per year, power plants 83,000 tons, and industrial processes 56,000 tons.

b. Water Quality

Industrial wastes and biological effluents, all originating outside of the recreation area, are a concern of such magnitude that cooperative efforts of Federal, state, and local governments have been initiated to search for solutions to the problems of disposing and treating water pollutants. The University of Nevada at Las Vegas is currently under contract with Clark County to monitor water quality and determine the effects of discharging treated sewage into Lake Mead. Las Vegas Wash alone contributes over 200,000 tons of various salts to the waters of the reservoir and sufficient organic material to create algal blooms in the lake.

c. Noise

Although there have been no noise level studies done in the regional area, various noise corridors are known to exist within the recreation area. The lake surface and the developed areas have elevated sound levels from motor boat, automobile, and associated recreational activities. Lake Mead Drive, the Northshore Road, and U.S. Highway 93 all carry heavy traffic volumes at various times, particularly on holidays and weekends.

Aside from light aircraft and scenic air travel over the recreation area, the reservoir areas and backcountry areas are traversed by major approach paths to McCarran International Airport south of Las Vegas. The region away from these noise corridors, the reservoirs, and developed areas is quiet. Although windy at times, there is little vegetation to even generate wind noise, and the silence is encompassing.

6. Probable Future Environment Without the Proposal

Without formal wilderness designation, the proposed wilderness units would continue to be managed as primitive backcountry areas for hiking and camping. The existing land uses described in Section A.4. of this chapter would probably continue with little increased intensity. However, special interest groups could more effectively apply pressure to rezone primitive backcountry areas for different or more intensive kinds of use. These different or more intensive uses would be more likely to affect the environmental integrity of the units than would wilderness use, and it would become progressively more difficult to preserve the unconfined primitive nature of these units as well as their atmosphere of solitude.

Without the legislative identification of wilderness as the primary purpose of these lands, some mineral leasing would undoubtedly occur in the future. There is little known likelihood for economically profitable mineral or fossil fuel deposits within any of the wilderness units. Therefore, mineral leasing would primarily cause surface disturbances associated with prospecting and mineral evaluation such as roads, drill holes, test pits, and temporary housing. All of these disturbances lay the imprint of man upon the land and would degrade the area's primitive qualities in an ever-increasing spiral.

Visitation to the areas proposed for wilderness is light, and not expected to increase dramatically in the near future whatever its land classification. However, if less than wilderness uses occur within these primitive areas, users seeking a wilderness experience will be forced further and further from established access points. As hikes to gain this experience become overnight or longer expeditions, there will be increased public pressure for more vehicle access corridors in this land of few water sources.

Without formal wilderness designation, the proposed wilderness units will be subject to administrative management decisions as to their best use, and these decisions may change more readily than when under the management mandates of the Wilderness Act of 1964. Management of the area, however, would potentially be more efficient and economical when not burdened by the restrictions of having to use the least damaging methods.

III. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A. ENVIRONMENTAL IMPACTS ON EXISTING LAND USE

Because of provisions in the enabling legislation for the continuation of various land uses in Lake Mead National Recreation Area, it is unlikely that the proposal will have substantial immediate effect on most existing uses of the essentially primitive lands proposed for wilderness designation. Restrictions on existing uses, where such uses are considered to be incompatible with preservation of an ecologically productive natural environment, are likely to be applied gradually as a result of management decisions. The potential short-term impacts of the wilderness designation on land use are therefore considerable, although quantification of those impacts at this time is not possible.

1. Mining

All areas with valid mining claims, mineral leases including those for oil and gas, outstanding mineral rights or reservation and about 3,500 acres of claims under adjudication, within the recreation area are being excluded from the proposal as wilderness areas. Thus, the proposed legislation will affect only mineral leasing of those resources which are, as yet, undiscovered on the 418,655 acres being proposed for wilderness, 55 percent, or approximately 816,920 acres, of the recreation area will remain open to application for mineral leasing.

If, as recommended, the legislation establishing wilderness at Lake Mead states that the primary purpose of the Lake Mead wilderness area is its preservation for use and enjoyment as wilderness, the effect will be to prohibit the exploitation of minerals, oil, and gas if they exist on wilderness units within the recreation area. In essence, this prohibition is in effect if the lands are placed in wilderness without this special provision because the Secretary's discretionary authority to grant leases is countered by the regulations he must issue under the structures of the Wilderness Act of 1964.

The adverse effects of the wilderness proposal on the 66,350 acres of private subsurface mineral rights should be negligible.

The most promising mineral areas within Lake Mead National Recreation Area have been intensively prospected over the years, and it is unlikely that any extensive mineral deposits remain undiscovered to be exploited in the future. The geologic structures which have been identified within the recreation area do not lend themselves to the accumulation of oil or gas sufficient for field production.

However, two oil and gas leases have been granted, and seven are under application, in the Cockscomb area northeast of proposed Wilderness Unit 18. To date, there has been no exploration or development activity on these leases.

Gold, copper, uranium, silver, sodium, tungsten, and manganese are the primary minerals which have been identified as having some potential for existing in commercial grades and amounts within the recreation area. No mineral discovery has been made on those lands on the Shivwits Plateau which are subject to Santa Fe Industries mineral reservations and repurchase rights and which are being proposed for potential wilderness. If economic deposits of minerals, or of oil and gas, do exist on lands given wilderness status, they will not be available for exploitation without future Congressional action, and would not contribute to the local, regional, or national economy. Such loss is unknown and unquantifiable. However, it is not believed to be significant as the areas have been prospected to no avail for many years.

2. Grazing

The proposed designation of wilderness will have no effect on current grazing operations because all roads, and stock tanks or water pockets requiring access by motorized vehicle for maintenance have been excluded from proposed wilderness units. However, livestock grazing will not be able to expand beyond the capability of current support facilities and access unless this expansion has been approved prior to the date of wilderness designation. If it has been approved, the area of expansion will not be proposed for wilderness. Because of the lack of water and productive range in the proposed wilderness units, as well as the limited access and rugged topography, the potential expansion of grazing operations into these areas is very limited and the impact of excluding future support activities from wilderness areas will have a minor impact upon the local livestock industry.

3. Reclamation

Sufficient land areas for potential reclamation activities and facilities have been excluded from wilderness to insure that the effects of wilderness designation on reclamation activities will be minor. After a three-year study, the Bureau of Reclamation has identified no potential future needs in areas being proposed for wilderness. Thus, the wilderness proposal will have no direct or immediate effect on the use of lands for powerlines, water supply, flood control, power generation, or other legitimate reclamation purposes.

If, as proposed, the Congressional Committee reports on the wilderness legislation state that the primary purpose of the designated areas is wilderness, it would serve to indicate that reclamation or

power purposes would not be permitted as they would be incompatible with wilderness.

In any event, such Federal reclamation proposals would require environmental impact statements and be subject to public scrutiny. It is likely that public pressure would be brought to bear on future reclamation projects which would threaten the esthetic or ecological integrity of a wilderness area. It is doubtful then, that wilderness areas would be proposed for reclamation purposes unless no other feasible alternative was available.

4. Recreation

Recreational use of Lake Mead National Recreation Area is largely confined to the two lakes and their lakeside recreational developments. Use of the backcountry has never been measured quantitatively, but it is known to be light. Establishing wilderness within the recreation area will focus public attention on these areas and may result in some small increase in backcountry use.

The wilderness proposal will not cause any roadways to be blocked or closed in the recreation area; therefore, it will have no effect upon such current backcountry recreational uses as hunting, hiking, camping, and rockhounding, which often require vehicular access.

The wilderness value of Lake Mead National Recreation Area's backcountry has heretofore been unpublicized, and as a result it is largely unrecognized. The spectacular wilderness country of the Sanup Plateau, the Colorado Gorge and some of the mountainous areas bordering Lake Mead, is unappreciated by the public at large. The establishment of wilderness in this park will focus public attention on these areas and may result in increased backcountry use, especially during the spring and fall when the temperatures favor such use. If the 37-hour work-week and the continuous operation of school systems become widespread, public leisure time will be more available and demands on recreational facilities may intensify, particularly during the spring and autumn, when commitments to jobs and school-year routines have traditionally limited vacation time during these seasons. Increased use would require increase management to maintain the same level of environmental quality. Because of the vastness of this park, the remoteness of some of its proposed wilderness areas and the existence of a management staff oriented almost entirely to active recreation on and near the lakes, repair and prevention of environmental abuse due to increased use will be difficult to implement. It is obvious that in a park with more than 4 million recreational visitors a year significant impairment of wilderness solitude would occur if even a small percentage decided to use the backcountry. At present, the adverse effects of recreational use on the backcountry are due

primarily to the sights and sounds of active recreation on the lakes (principally recreational boating and water skiing) and the developed areas (camping, overnight lodging areas, picnicking) that are visible from many wilderness locations. If many more visitors were induced to use the wilderness, these remote effects would be augmented by more direct impacts, which might include trampling of vegetation, littering, destruction or damage to archeological resources, increased noise, disturbance of wildlife habitat, and reduced availability of solitude. Controls of backcountry use may eventually be necessary to preserve the wilderness environment the visitor seeks to enjoy.

Regardless of the potentially adverse effects of increased back-country use as a result of wilderness designation, the social and psychological benefits of providing for wilderness use as an alternative type of recreational use in this national recreation area are substantial.

Existing recreational uses of lands adjacent to wilderness areas can have a significant effect on the quality of the wilderness experience. The noise from powerboats, power-rafts, and land vehicles will be apparent in many units, particularly with $\frac{1}{4}$ mile of roads and waters used for boating. All wilderness units border such features and it will, therefore, be impossible for the wilderness user to isolate himself from the sounds of motorized vehicles in all parts of the wilderness areas. However, most of the wilderness units contain very rugged terrain, which tends to provide considerable insulation from both the sound and sight of recreational use on nearby lands. In a desert environment where vegetative cover is sparse and sight distances are great, natural topographic features provide the best buffer from nearby uses that are incompatible with the perpetuation of an atmosphere of wilderness solitude.

Wilderness areas established in the canyons of Units 21 would be particularly subject to esthetic degradation from facilities that might someday be established on the upland plateau flats, which have been excluded from wilderness. The wilderness canyons are deeply incised into the Sanup Plateau uplands and extend to the escarpment at the lip of the above Shivwits Plateau. The canyons and upland flats form an interdigitating mosaic of wilderness and non-wilderness that is potentially incompatible with respect to the kinds of use and development permitted in the two areas. The use of overlooks, roads, trails, and related facilities might be perceptible from various locations in the wilderness areas, thereby lowering the quality of this outstanding wilderness environment. No such facilities along the rim are being contemplated in current park plans.

Wilderness use is a form of recreation which complements the other, more intensive recreational opportunities available within the national recreation area. In the harsh desert away from the reservoirs, a day-use philosophy seems appropriate for most wilderness users. Roads allow access to the vicinity of wilderness units and provide access for two types of users: the recreational vehicle enthusiast and the backpacker. Coves, inlets, and shore-line provide access to the wilderness by those using watercraft on Lake Mead or Lake Mohave.

Many of the wilderness units border developed areas, such as Temple Bar, where large numbers of retired persons spend a good share of the winter. Wilderness in close proximity to these areas allows for a special desert experience during the cool winter months when it is possible to comfortably explore this historic and picturesque area. Wilderness designation will assure that this opportunity will continue to be available for all to enjoy. It is this wilderness background that enriches the experience of all those who use the recreation area.

B. IMPACTS ON NATURAL RESOURCES

The designation of wilderness units within Lake Mead National Recreation Area should result in long-term protection for natural resources which other land use classifications would not because it would be a legislative classification and not subject to local administrative changes.

Wilderness designation will affect the management of wildlife and vegetation by restricting the use of motorized equipment or methods which might be the most effective but are not the minimal techniques required in wilderness areas. The control of feral animals and various exotic plants (such as Saltcedar along shorelines or washes), which threaten the ecological stability of some areas may be rendered less efficient under the strictures of wilderness status. Regulations designed to control the use of the areas and protect the natural environment may also be made more difficult to enforce.

Several important botanical resources would also be given the protection of wilderness status. Geological resources preserved within the proposed wilderness unit include portions of the brightly colored sandstone of the Aztec Formation (Units 10, 11, and 12) and flatbedded gypsum of the Big Gyp Beds (Unit 14).

The prevalence of forest insects and diseases and the consumption of natural resources by fire will be unaffected by the proposed action. Endemic infestations and wildfires which threaten important resources or which threaten to impact adjacent private and public lands can be controlled under the provisions of the Wilderness Act,

subject only to any Secretarial limitations imposed. Wilderness designation does not preclude resource management practices which allow natural occurrences of wildfire or insects to have their natural effects on the ecosystem. Fires are very infrequent because of lack of adequate fuel, but do occasionally occur, particularly in the more densely vegetated areas of the Colorado Plateau section of this park (Unit 21, comprising 38.4 percent of the total proposed wilderness area). This section is the least accessible part of the park and, therefore, the one in which wildfires are most difficult to control at an early stage. Restrictions on the construction of roads into Wilderness Unit 21 might impede the movement of fire-fighting equipment.

If backcountry use increases because of wilderness designation, there will be a small, but proportionate, increase in the trampling of vegetation, destruction of wildlife habitat, disturbance of wildlife, compaction of soils, and, especially in the upland portions of Units 23, 24, and 25, the chance of man-caused fires. Because of the vastness of this recreation area, the remoteness of many of the proposed wilderness units, and the existence of a management staff which must be oriented primarily to the active recreation on and near the reservoirs, the repair and prevention of environmental abuse from increased use will be difficult.

Wilderness designation of the River Mountain unit will provide an additional level of protection for the habitat of the River Mountain herd as a new growing herd not a remnant herd of bighorn living there. Five other units proposed for wilderness status contain prime habitat for desert bighorn (Units 5, 7, 11, 19, 20, 24, and 25). Protection of bighorn habitat through wilderness status should contribute to the stability of the populations as they are wilderness species and tend to remain away from human activities. The wilderness areas will also provide suitable habitat for the Gila monster (Basin and Range section in lowlands only), desert tortoise (Basin and Range section in lowlands only), prairie falcon (ubiquitous), and peregrine falcon (ubiquitous)--all of which are either rare, threatened, or endangered.

A grove of about 800 yellow palo verde trees lies southeast of Fire Mountain in potential Wilderness Unit C, and represents the northernmost extent of the range of this species. If this unit is rejected by the Bureau of Reclamation as a pumped-storage site, this northern outpost of palo verde trees will be given the added protection of being in an area reserved for wilderness use.

Vegetation would benefit from wilderness designation only to the extent that wilderness designation prevents their destruction due to vehicle use, construction activities, and trampling by man.

If prospecting, mining, and their support facilities were to be permitted in those areas proposed for wilderness, it could result in the disruption of wildlife habitat, destruction of vegetation, soil compaction, erosion, air pollution, and the introduction of contaminants into the Colorado River and the reservoirs. The proposed action will have the effect of eliminating the potential for these impacts to occur.

Wilderness designation will greatly facilitate compliance with Executive Order 11752, which requires adherence to air- and water-quality standards in accordance with the Clean Air Act of 1970, the Federal Water Pollution Control Act of 1970, and applicable state standards and regulations. Noise level standards and controls will be more acceptable on and over lands designated as wilderness, as will prohibiting off-road vehicle use. Air, water, and noise pollution created by the construction of additional developments, or those concomitant with leasing activities, in natural areas of the recreation area will be eliminated by the preclusion of these developments under a wilderness designation. However, the reclamation of wilderness lands already disturbed by these activities will be more difficult and expensive to accomplish.

C. IMPACTS ON CULTURAL RESOURCES

If backcountry use increases because of wilderness designation, there will be a minor increase in the deliberate and accidental loss or destruction of historic and archeological resources within the recreation area. Patrols designed to protect these resources may be made more difficult or expensive because of the prohibition of motorized vehicles in wilderness areas. Research and excavation of historic or archeological sites will also be made more difficult and expensive for the same reason. Any increase in backcountry use due to wilderness designation is most likely to be concentrated in the Newberry Mountains, Pinto Valley and the Shivwits Plateau. It is unlikely that any such increase would equal 0.1 percent of the total park visitation within the foreseeable future.

Wilderness designation will prevent the accidental destruction of historic or archeological resources from the construction activities related to the potential recreational facilities which could be developed in the wilderness units. It will also protect them from similar disturbances related to the search for and development of mineral, or oil and gas, resources, and those related to reclamation projects.

Restrictions relating to wilderness designation might also impair the efficient conduct of potential future research on natural or archeological resources. However, except in the remote canyons of the Sanup Plateau, all wilderness locations are within a few miles of

a jeep trail or maintained road, so impairment due to difficult access should be minor. Prohibition of permanent research facilities in wilderness areas could restrict research operations, particularly in the Sanup area, in the event such facilities became necessary. These research facilities could in many cases be located immediately adjacent to the wilderness units, in order to minimize inconvenience to researchers. If wilderness limits the ability of scientists to acquire knowledge about the park's resources, management of those resources would have to be done on the basis of more limited factual information, thereby increasing the probability of erroneous decisions.

D. IMPACTS ON SOCIOECONOMIC FACTORS

The economic and potential inflationary effects of the wilderness recommendation for Lake Mead National Recreation Area have been evaluated in accordance with Executive Order 11821. The magnitude of any inflationary effect will be minor and no inflation impact statement will be prepared for the proposal.

The social and psychological values of providing for wilderness use as an alternative form of recreational activity can be a substantial, but quite unquantifiable effect. The reclamation special provision will make an additional 96,000 acres of otherwise qualifying land available for wilderness, and connect otherwise disparate units, in exchange for potential reclamation uses which are unforeseen and unexpected by the Bureau of Reclamation at this time.

The legislative statement of the primary purpose of preservation for wilderness enjoyment and use will have little effect on the potential profit from the extraction of mineral resources, as the area has been well prospected for many years and does not appear to have any promising mineral production potential. Rather, it will clarify the ambiguity that would be created if an area were open to mineral leasing yet constrained by wilderness legislation.

Any economic impacts associated with the wilderness proposal are likely to be negative with respect to the present status of primitive lands. Any economic benefits due to increased backcountry use would probably be offset by losses due to increased restrictions on consumptive uses of natural resources as covered in Section 111-A. Most of these restrictions are not implicit in the wilderness proposal, but rather would result from public pressure against such uses following designation of wilderness units.

E. IMPACTS ON WILDERNESS VALUES

The lands being considered for wilderness designation in this proposal are all being managed as natural areas at the present time. There is a value difference implied between the two types of designation and the effects of wilderness status will be to magnify and embellish certain impacts and seemingly create others from this value difference.

Domestic livestock grazing within the units proposed for wilderness are obviously non-native animals in the area due to the presence of man and affect the natural environment by altering the species composition of plant communities through selective foraging, trampling of vegetation and soils, overgrazing selective areas, creating increases in the rate of erosion, and fouling watering areas with excrement. Some backcountry users would accept the presence of grazing livestock and their effects in a primitive area, but have the esthetics and sensibilities of their wilderness experience degraded by the presence of these animals in an area designated as free from the works and activities of man.

By eliminating the potential for mineral, oil and gas, recreation facilities, roads and other developments, wilderness designation will have the effect of also eliminating the potential for degradation of wilderness values from the sight, sound, litter, and other disturbances of these activities and facilities.

At the present time, the effects of recreational use on the backcountry of the proposed wilderness units are from the sight and sound of active recreation in the developed areas, on the reservoirs, and on the Colorado River. All wilderness values will be diluted along those boundary lines which are adjacent to heavily used non-wilderness areas, along roadways, and adjacent to heavily used portions of the reservoirs. The urban setting of Boulder City and Las Vegas can be seen from the River Mountains, and to the south and east of the Newberry Mountains the developments at Davis Dam, the Mohave Power Plant, Katherine Landing, and Bullhead City can be seen from Unit 1. The contrast between untrammelled primitive lands and those where man's influence dominates the scene is obvious from sections of all of the proposed wilderness units in the Basin and Range sections of the recreation area. For some backcountry users, this contrast in land use will be of value in developing an appreciation of wilderness values. For other backcountry users, the contrast will be pervasive and degrade their experience.

The effects of influences from outside of the recreation area, such as chaining, animal poisoning, poaching, overgrazing, mining, pothunting, land disturbance, air and water degradation, and the like, all have more significance when pertaining to adjacent wilderness lands, rather than to adjacent lands which remain in a primitive

or natural classification. The physical effects are identical, but the subjective effects are greater because of the greater subjective value placed on lands designated as wilderness.

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

There are no specific actions included within the wilderness proposal for the mitigation of impacts created by the proposed action. However, mitigation of effects upon resources of the recreation area, both known and potential, and upon current and projected land use needs, was a constant consideration in the formulation of the proposed action.

Legislative language is proposed to establish the primary purpose of the wilderness as preservation for the use and enjoyment of the area as wilderness. This will eliminate the inherent conflict between the Secretary of the Interior's existing authority to grant leases for mineral or oil and gas development, yet formulate regulations which would essentially prohibit the development on such leases to protect wilderness values. To mitigate against any potential economic loss created by this clarification of intent by Congress, no lands having any form of oil and gas or mineral reservation on them were proposed for wilderness.

To mitigate against any impacts upon grazing activities within the recreation area, all road corridors and adjacent structures required to support current grazing, and approved expansions, have been excluded from wilderness units.

To prevent any foreclosure on the energy needs of the nation, the National Park Service awaited the completion of a three-year study by the Bureau of Reclamation within the confines of Lake Mead National Recreation Area. All areas determined by the Bureau to have potential for energy production, and the transmission of that energy, were recommended as potential wilderness until final studies by the Bureau resulted in final selections. A special provision is provided in the proposal to allow the Bureau of Reclamation to complete the Southern Nevada water project tunnels and for proper upkeep and maintenance. This will mitigate the impacts of placing the River Mountains in Wilderness.

Sites with potential as future recreation development areas have been selected and have not been placed in wilderness units. This mitigates against closing off lands within the recreation area for such purposes should the future need arise.

The backcountry use of the wilderness units will be carefully monitored. At the first signs that resource deterioration is occurring because of increased use, a use carrying capacity will be implemented to eliminate it. Routine management procedures should be adequate to mitigate most, but not all, of the adverse effects of visitor use of the wilderness.

To mitigate the impact of the wilderness proposal upon wildlife management programs concerning the desert bighorn, a special provision is being proposed to allow for the placement of wildlife watering devices within units designated as wilderness.

The cultural resources contained in the backcountry areas of Lake Mead National Recreation Area are largely unknown. To mitigate against any impact upon the known cultural resources caused by the creation of wilderness units within the recreation area, all properties under evaluation by the Western Regional Office of the National Park Service will be afforded the protection outlined in the "Procedures for the Protection of Historic and Cultural Properties" of the Advisory Council on Historic Preservation (36 CFR Part 800). Until comprehensive Executive Order 11593 surveys have been completed in the wilderness units, all cultural sites as they are discovered will be given the same protection under the order. Executive Order 11593 cultural resource surveys will be made prior to relinquishing administration of any potential wilderness units to the Bureau of Reclamation as selected pumped-storage sites, and the salvage provisions of P. L. 93-291 implemented.

To mitigate against locking up large tracts of land, a sufficient number of access roads are retained by the natural resources management plan into the recreation area and are not in conflict with any of the proposed wilderness units.

The Wilderness Act of 1964 (Appendix B) contains provisions for non-wilderness permitted actions to mitigate against restrictions which might otherwise endanger human life, health, safety, and property. It also provides for controls to mitigate the potential loss of natural resources from fire, insects, or diseases.

**v . ANY ADVERSE EFFECTS THAT CANNOT BE AVOIDED
SHOULD THE PROPOSAL BE IMPLEMENTED**

Use of the wilderness for backcountry recreation will result in some unavoidable disturbance of vegetation and wildlife habitat; some risk of vandalism to archeological resources; some littering; and some pollution associated with a lack of sanitary facilities.

Unless later reversed by Congress, the loss of 418,655 acres of land for exploitation for its potential oil and gas, and mineral resources will be unavoidable.

Because of the restrictions upon the types of access into wilderness areas, there will be a certain cost in time, money, and effectiveness in research, management, and administration of wilderness areas.

Any increased use of the backcountry because of wilderness designation will create some cultural resource loss despite compliance surveys, salvage work, and enforcement efforts.

It is unavoidable that some wilderness users will have a lessened wilderness experience because of livestock grazing, and in some portions of those sections of the recreation area in the Basin and Range, from the sight and possibly the sound of man and man's works.

Livestock grazing will not be able to expand beyond the ability of current support facilities and access if such expansion has not been approved at the date of this legislation.

Without further Congressional action, approximately 96,000 acres of land withdrawn for potential future reclamation projects will be lost to such activities.

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The designation of wilderness areas in Lake Mead National Recreation Area commits the National Park Service to a long-term management policy for those lands which will perpetuate an atmosphere of wilderness and solitude, as well as facilitate the protection of ecological stability and integrity of cultural resources. The short-term exploitation of natural resources will be curtailed from expansion in the case of grazing, and eliminated in the case of oil, gas, and mineral extraction, and reclamation activities, in order to preserve wilderness values. Short-term exploitation of these commodities would still be possible in those portions of the recreation area being proposed under a non-wilderness classification if other conditions permit.

**VII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS
OF RESOURCES THAT WOULD BE INVOLVED IN THE
PROPOSED ACTION SHOULD IT BE IMPLEMENTED**

The change in status from an administratively designated primitive area to a Congressionally designated wilderness does not cause any irreversible or irretrievable commitment of resources. There will be no resource extraction, destruction of archeological or historic sites, elimination of endangered species habitat or significant change in land use. The resources within the wilderness units will remain intact as long as wilderness designation is in effect. Potential recreational benefits from the development of extensive facilities for active recreation, potential benefits from oil, gas, or mineral extraction, and potential, but unforeseen, reclamation projects, potential benefits from the expansion of the area's grazing operations, are only irretrievably lost as long as wilderness designation is in effect.

VIII. ALTERNATIVES TO THE PROPOSED ACTION

A. NO ACTION

The alternative of no action would consist of a conscious decision to continue the present management policies, trends, and conditions in the recreation area. The no action alternative would entail several potentially significant environmental impacts. If no wilderness is designated, the proposed wilderness area would be managed as primitive backcountry, which is essentially the same use and management specified under the Wilderness Act of 1964. Administrative reclassification of existing primitive lands would, however, be possible. Such reclassification would allow for more intensive recreational use and development, thereby jeopardizing the atmosphere of wilderness solitude that these lands now possess. Construction of new roads and the resultant incursion of vehicles in existing primitive areas could take place, subject only to administrative approval by the National Park Service and the Department of the Interior. Increasing levels of noise, air pollution, and disruption of wildlife behavior patterns would result.

Failure to establish legislative wilderness areas would permit greater flexibility in management techniques, which could result in reduced management costs. These techniques might include use of off-road patrol vehicles and motorized maintenance equipment, as well as the construction of more elaborate and efficient waste-disposal systems than would be permitted in wilderness areas. The efficient conduct of research in remote backcountry areas--particularly archeological, historic, and paleontological surveys--would not be impeded by restrictions on the use of vehicles and various types of equipment and the establishment of relatively permanent research facilities.

The national spotlight is now, and is likely to continue to be, focused on Congressionally designated wilderness areas. Actions taking place within primitive areas do not seem as important as those in wilderness areas. Therefore, should no action occur, and an incompatible Federal action be proposed on the primitive areas within the recreation area, it would be difficult to raise public opinion on controversial issues and to gain full public participation in the decision-making process.

No plans for recreational developments have been formulated for any of the primitive areas being proposed for wilderness designation. However, under the alternative of no action such development would not be precluded. The construction of additional recreation facilities in existing primitive areas in response to increased demand could result in increased damage to vegetation from off-road vehicle use; increased erosion; reduction in the opportunities for solitude due to increased visitor density; reduction in suitable habitat for desert

bighorn and other wildlife species; and a gradual elimination of the opportunity to provide a multiple-use recreation area which accommodates an unconfined backcountry experience along with intensive and active forms of recreation.

If increased visitation is a by-product of the publicity surrounding the establishment of an area as wilderness, then it is possible that a course of no action would maintain current levels of use for many years. If this is true, then no action would mean that all forms of visitor impact upon the environment of the backcountry would not increase rapidly in the next few years. Some areas of critical habitat or cultural fragility have a carrying capacity which approaches zero. A course of no action might provide more protection to these resources if it does not result in increased visitation or undue publicity, but only over the short run.

A course of no action would allow leasing for gas, oil, and minerals within primitive areas of the recreation area. Such leasing results in access roads being constructed into previously primitive areas, surface disturbance from drilling and testing activities, and could eventually lead to full-scale mining or drilling operations if an economic resource is found.

It is unlikely that failure to take the proposed action would result in any immediate alteration in the existing use and management of the proposed wilderness units. Most of the areas are rugged and nearly inaccessible except on foot. The areas have a decided lack of water and are, in general, unsuitable for either substantial recreational or consumptive use of natural resources. The monetary and energy expenditure needed to develop these areas for other than primitive recreation is so great as to make them infeasible, especially for short-term exploitation. If mineral extraction or reclamation purposes become so compelling as to be in the national interest to exploit the resources of these units, Congress could authorize such land use if the lands have been designated as wilderness or if a course of no action has been followed. However, a course of no action could allow for authorization of such use at a lower echelon of Government.

B. LESS WILDERNESS DESIGNATION

It is self-evident that the number of possible boundary permutations within a recreation area as large as Lake Mead is practically limitless. This revised wilderness proposal recommended by the National Park Service is essentially a maximum wilderness proposal within the constraints of reclamation requirements for the area. All lands which qualify, or which can be made to qualify through management actions, have been recommended for wilderness status; lands which do not qualify have not been recommended. A "more" wilderness

alternative would, therefore, include lands where man's presence and his works preclude such designation.

A less wilderness alternative consists of the proposal minus one or more of the units proposed for wilderness which contain elements which remove them from the more puristic core wilderness of the recreation area. None of man's intrusions into these areas disqualify them from wilderness status, and all of the intrusions can be controlled or eliminated through management action if it is so desired.

The primary impacts of less wilderness would be to break the remaining wilderness status lands into lesser blocks lacking in continuous integrity, and to allow for non-wilderness developments which might penetrate deep into or between wilderness status lands. The impacts of including areas within wilderness which could potentially be dropped to form a less-wilderness alternative have already been covered in the Impacts of the Proposed Action section of this statement. The impacts of excluding one or more of these areas from the wilderness proposal will parallel those of the previous no action alternative for each area deleted from the proposal with the quantitative effect varying primarily with the number of acres involved.

A less wilderness variation could be formed by deleting from the proposal the 100,275 acres of potential wilderness additions (Units A, and C-K) which the Bureau of Reclamation has identified as potential locations for reclamation facilities, and the entirety of the 6,975 acres of Unit 6 in the River Mountains, which are cut by an infrequently used tunnel maintenance road. Those units which are not destined for reclamation purposes could be proposed for wilderness at a later date. Such a lesser wilderness would allow the Bureau of Reclamation a free hand in the methods utilized in evaluating the various sites for their specific purposes. The minor protection afforded these areas by identifying them as having wilderness quality would be removed, and surface disturbance of the natural environment would be more easily permitted.

Another less wilderness variation would be to delete all units where man's activities outside the unit could be observed. This would be a wilderness proposal in the purest sense. It would result in the elimination of all but a few thousand acres in the Basin and Range portion of the park, reduced portions of Units 18 and 19, and almost all of Units 23, 24, and 25 on the Shivwits Plateau. The total purest wilderness proposal would probably amount to less than 100,000 acres.

Several areas being proposed for wilderness classification could be considered because of past uses which have affected their wilderness character. Other units could be considered for deletion because of potential management needs, or because wilderness classification will

probably not change the present or future use of the area. Many of these units are crossed by old roads or jeep trails which could facilitate recreational use on Lake Mohave or Lake Mead. Also, some of these units would be suitable for the development of facilities to permit diversification of recreational options in the park.

Deletion of these units from the wilderness proposal would further reduce the opportunity for an unconfined type of wilderness experience by cutting large wilderness units into disjunct parts. The economic impacts of deleting these units from the wilderness proposal would be minor because exploitation of natural resources for reclamation purposes, grazing, prospecting, mining, oil and gas extraction, and related activities would not be prevented.

A brief description of the individual areas which were most seriously considered for deletion from the wilderness proposal are as follows:

1. River Mountains

The 6,975-acre River Mountain unit is the home of the largest and healthiest herd of desert bighorn in the recreation area, and possibly in the Southwest. This herd of about 250 animals has developed because of the water supply available from the Boulder Beach sewage system. In 1963, a survey showed the presence of only 68 desert bighorn in the River Mountains, but by 1973 the herd had grown to more than 250. The herd has been used as a source for re-stocking desert bighorn in Zion National Park because the herd appears to be disease and parasite free.

The River Mountains are used as an environmental-education area under the National Environmental Education program because of its ready accessibility from the Las Vegas Valley, the urban areas of which are visible from many locations in the tract. Boulder Beach and associated developments on the western end of Lake Mead's Boulder Basin are visible from much of the eastern part of this area. To many, these esthetic intrusions would have an adverse impact on the wilderness experience.

The area is closed to grazing and has never been subject to significant grazing pressure because of the extremely rugged terrain. Wilderness deletion, therefore, would have a negligible beneficial economic impact on private interest holding grazing leases in this area. The tract is also closed to hunting by both State and Federal regulation. There are no mineral leases, patented claims, or known valid existing claims present in the area. Limited prospecting has been done historically, but evidence of disturbance from this activity is negligible. Beneficial economic impacts on private interests due to fewer restrictions on prospecting and mining should be minor if this area were deleted from the wilderness proposal.

The close proximity of this area to the park's largest recreational development at Boulder Beach would tend to degrade the wilderness experience because the sites and sounds of intensive recreational uses are perceptible from most of the tract. The adverse impacts of such activities on the ability of the wilderness user to find pure wilderness solitude tends to make the area unsuitable for wilderness designation in spite of its substantial value as bighorn habitat.

2. Overton Unit

This 24,000 acre tract of land was considered for deletion from the wilderness proposal. The unit is largely roadless, except for two gravel roads that provide access to the lake and are used primarily by hunters, fishermen, and beach users. Grazing pressure is light to moderate, and habitat value to wildlife is slight. The area contains no mining leases or privately owned mineral rights.

The proposed Overton Arm Addition contains no outstanding natural, historical, or archeological resources that might benefit from the additional protection wilderness status would afford.

The land slopes toward the lake, which is visible from nearly any location in the tract. Recreation use of the lake is locally heavy, particularly in the Echo Bay region north of proposed Wilderness Unit 12. The sounds generated by such use would be apparent to users of this area and would have adverse impacts on the wilderness experience. For this reason, the environment of this region is less conducive to a wilderness experience for many years.

C. ADDITIONAL SPECIAL PROVISIONS

Three additional special provisions have been suggested for consideration which provide variations to the basic wilderness proposal.

1. Cultural Resource Management

This special provision would provide for occasional and temporary access into wilderness units by aircraft and motorized vehicles. This access would only be permitted for the management purposes of completing Executive Order 11593 cultural resource inventories, and for implementing mitigating or protective actions. Access would be permitted until all inventories and corrective actions are completed. Such access of motorized vehicles or aircraft would be permitted only on established roadways, vehicle trails, and landing areas, and such access would only be permitted after review and concurrence from the Superintendent of the recreation area and the Director of the Western Region of the National Park Service.

This special provision would reduce the costs and time to produce such surveys and protective actions required to implement Executive Order 11593. The effect upon survey and preservation crews would be less arduous and time-consuming access to survey and cultural sites.

However, the effect of such a special provision would also be to keep the control of wilderness values in local administrative hands instead of giving it full wilderness protection under the Wilderness Act of 1964. Similar special provisions could be developed for the management needs in resource protection, interpretation, law enforcement, and so on.

The term of this special provision would depend upon the availability of personnel and funding over the years to complete such surveys and preservation projects. Therefore, the special provision could stay in effect for an indeterminate number of years. During this time, the wilderness areas would continue to be used in a non-wilderness manner by motorized vehicles. Abandoned roadways and vehicle trails would not return to a natural state as rapidly as they would in an untraveled wilderness state. Wilderness users would have their wilderness experience intruded upon by the presence and activity of motorized vehicles.

The Wilderness Act of 1964 provides specifically for the management of wilderness through the use of the least tool. In some extreme cases, an aircraft or motorized vehicle may prove to be that least tool provided for in the Act. As access in this case is provided for in the Act it was not felt necessary to include this special provision in the proposal so that the more routine problems of access into wilderness areas for management purposes could be accommodated.

2. Reclamation Withdrawals

This special provision would provide for specific and definitive action by Congress which would eliminate any ambiguity in the interpretation of Congressional intent. The reclamation provision in the proposal recommends that the legislation which designates wilderness in Lake Mead National Recreation Area state that the primary purpose of such wilderness units be for their preservation and use as wilderness until such time as other uses are permitted by subsequent legislative action as provided for in Section 3(e) of the Wilderness Act of 1964, P.L. 88-577. The proposal's reclamation provision does not recommend that previous reclamation withdrawals be revoked, only that the prior primary purpose of these lands withdrawn for reclamation purposes now be given a secondary purpose to that of Congressionally designated wilderness.

As recognized by the Solicitor (see Appendix E) reclamation withdrawals must be revoked on lands before or simultaneously with their wilderness designation by Congress. To accommodate this opinion, and that of those members of the public who would prefer a more definitive expression of intent from Congress concerning these lands, the following special provision has been developed.

"It is recommended that the legislation which designates wilderness in Lake Mead National Recreation Area contain a special provision which revokes, or directs the Secretary of the Interior to revoke, all reclamation withdrawals and reservations which may be in effect on lands designated as wilderness. If Congress so directs the Secretary, his authority to make such revocations is contained in Section 3 of the Act of June 17, 1902, 32 Stat. 388, as amended and supplemented, 43 U.S. C. Section 416 (1964). It is further recommended that this special provision contain language which proscribes future reclamation activities on lands which have been designated as wilderness, unless Congress gives its specific consent to these activities. "

This special provision has the effect of allowing wilderness use to supercede reclamation use on lands withdrawn but not scheduled for reclamation use. Wilderness units will have greater continuity under this special provision than if the 96,000 acres of lands subject to reclamation withdrawals retained their primary reclamation use. This reclamation provision will also prevent wilderness areas from being traversed by such reclamation projects as power transmission lines, and protect all natural resources in each unit from further disturbances. Another effect of this special provision would be to allow for wilderness designation without causing differences in legal opinions.

Such specific language would have the effect of exchanging potential reclamation purposes for specific wilderness uses and clearly give the land the Congressional protection of the Wilderness Act of 1964. Other than this definitive clarity, there would be no other effects beyond those anticipated from the proposals present special provision on reclamation withdrawals.

3. Mining

This special provision would provide for specific and definitive action by Congress which would eliminate any ambiguity in the interpretation of Congressional intent toward mineral exploitation on wilderness designated lands in Lake Mead National Recreation Area. The mining provision in the proposal recommends that the legislation which designates wilderness in Lake Mead National Recreation Area state that the primary purpose of such wilderness units be for their preservation and use as wilderness until such time as other uses are permitted by subsequent legislative action as provided for in

Section 3(e) of the Wilderness Act of 1964, P.L. 88-577. The proposal's mining provision does not recommend that future mining leases be prohibited on lands designated as wilderness, nor would it prohibit such use if it were secondary and not in conflict with wilderness preservation and use.

By their very nature, the works and activities of man in a mineral extraction activity are in direct conflict with wilderness values. It is difficult to visualize the Secretarial limitations, conditions, or regulations which could serve to protect wilderness and natural values and still remain reasonable and not unduly restrictive on mining or oil field development. With this ambiguity in mind, it is doubtful if the Secretary would grant mineral, or oil and gas leases on Congressionally designated wilderness lands.

To eliminate this ambiguity and to accommodate those members of the public who prefer a more definitive expression of intent from Congress concerning mineral extraction from wilderness lands, the following special provision has been developed.

"It is recommended that the legislation which designates wilderness in Lake Mead National Recreation Area contain a special provision which terminates the Secretary's authority to grant leases for the extraction of minerals, oil and gas from lands designated as wilderness. Additionally, Congress could provide, subject to just compensation when constitutionally required, for the termination of all existing lease rights. "

Such specific language would have the effect of exchanging unknown potential mineral extraction for specific wilderness preservation and use; clearly giving the land the protection of the Wilderness Act of 1964. Other than this definitive clarity, which would prevent differences in legal interpretation, there would be no other effects beyond those anticipated from the proposal's present provision on mineral exploration and extraction.

IX. CONSULTATION AND COORDINATION WITH OTHERS

A. CONSULTATION AND COORDINATION IN THE DEVELOPMENT OF THE PROPOSAL AND IN THE PREPARATION OF THE DRAFT ENVIRONMENTAL STATEMENT

Consultation and coordination on wilderness recommendations have been underway for the Lake Mead National Recreation Area since 1973 (see Appendix F). The information gathered during this period has been considered in developing the current preliminary wilderness proposal as it has been affected by the Grand Canyon Enlargement Act of 1975 and by the Bureau of Reclamation study, Reclamation Potentials Within the Lake Mead National Recreation Area, of January 1977, which identifies potential development sites to meet the energy needs of the Southwest (see Appendix A).

I. Consultation with the Public

a. Field Trips for Consultation with Local Ranchers

Field trips were made on March 2-4, and April 21-22, 1977, in the Colorado Plateau section to make on-the-ground inspections of grazed areas which require developments and access routes to conduct grazing operations. The wilderness proposal, as it would affect grazing, was outlined with two of the allottees and arrangements were made with the Lake Mead staff to contact the remaining two allottees with the same information. Tanks, improved water pockets, pipelines, and access routes were identified and located through personal contacts and field checks.

b. Wilderness Pre-Planning Workshops

The National Park Service, with the Bureau of Reclamation participating, held pre-planning public workshops in Phoenix, Arizona on February 14, 1977; Los Angeles, California on February 15; Las Vegas, Nevada on February 16; Kingman, Arizona on February 17; and St. George, Utah on February 18. The approximate attendance at each meeting was: Phoenix - 14, Los Angeles - 2, Las Vegas - 14, Kingman - 10, and St. George - 0.

The purpose of the meetings was to identify public concerns and desires for wilderness designations within the reduced boundary of Lake Mead National Recreation Area and to describe the Bureau of Reclamation proposals to meet the energy needs of the Southwest.

The following table lists ideas grouped according to concerns expressed by meeting participants. This data was used along with basic resource data to develop alternatives and their impacts for

wilderness planning at Lake Mead National Recreation Area. Also provided is a review of organizations and interest groups represented.

LAKE MEAD NATIONAL RECREATION AREA WORKSHOPS
February 1977

WILDERNESS CONCERNS

A. 1974 Wilderness Plan

- 1. Grand Canyon section - should have the maximum amount of wilderness with a phasing out of all uses contrary to wilderness management.**
- 2. Original 1974 wilderness plan was acceptable and the amount of wilderness should not be decreased, but rather increased.**
- 3. NPS 1974 recommendation should be considered as the minimum amount of wilderness - all those areas then recommended should be recommended now.**
- 4. Wildlife and flora might be threatened by vehicular usage and so such use should be totally eliminated.**
- 5. The Kelly Point road should be closed at Fire Camp.**
- 6. All areas noncontiguous with the recreation area should be wilderness.**
- 7. All areas with bighorn habitat should be in wilderness.**
- 8. Existing facilities are okay in noncontiguous areas.**

B. Bureau of Reclamation Studies

- 1. There should be an acceleration of Bureau of Reclamation studies and during the interim none of the areas under consideration for reclamation purposes should be excluded from wilderness designation.**
- 2. Pumped storage: If a site is on wilderness quality land, there should be a wilderness recommendation regardless of this potential or speculation.**
- 3. Wilderness should be ranked above energy needs.**
- 4. Wilderness in Lake Mead NRA is more important than future electrical energy.**

5. Wilderness designation need not be delayed because of incompleting Bureau of Reclamation studies.
6. Wilderness should be ranked above future Reclamation projects.
7. There should be no mechanical access into any potential wilderness areas.
8. Wilderness should be at water's edge, even if it prevents motorized water access.
9. Wilderness boundaries should be drawn at high-water line.
10. Wilderness designation should extend as far water-ward as practical to patrol.

C. Existing Recreation Activities

1. Boating activities and beach activities should not be altered.
2. Current uses of land should be preserved.
3. Wilderness is a negative factor because it further limits recreational usage.
4. No more roads.
5. Current use by motorized vehicles should be considered and those areas that have established traditional use should be excluded from wilderness designation.
6. Use adjacent to the lake is not compatible with a wilderness classification. Perhaps a one or two mile land area around the lake perimeter should be excluded from wilderness consideration.
7. We must consider which of existing uses must be revised and which retained.
8. Hunting should be allowed, but should not block wilderness designation.
9. All watercraft should have access to all parts of the shoreline.

10. Wilderness designation should prohibit current traditional vehicular use.
11. "Very" primitive roads should not preclude wilderness designation.
12. Some coves should be proposed for wilderness-uses, such as sailboat use.

D. Grazing and Mining

1. Grazing in wilderness areas should be restricted for domestic livestock, and feral livestock eliminated.
2. All areas impacted by mining should be studied and those that qualify should be recommended for wilderness.
3. Wilderness would serve fewer people than mining areas in terms of overall economics and usage.
4. Grazing and mining as practiced now are not incompatible with the concept of wilderness, however, at some time in the future these practices might have to be revised.

E. Carrying Capacities

1. NPS should develop carrying capacity for wilderness areas and the park's management plan should be based upon it.
2. There should be a length of stay limit for individuals using wilderness.
3. How will enforcement of the wilderness use limitations be accomplished?

F. Other

1. Eliminate non-federal lands to allow maximum solid wilderness blocks.
2. Wilderness law is an old law, and perhaps it creates an abundant bureaucracy.
3. Proper maintenance is necessary even if it requires additional facilities for maintenance personnel.

4. Each area suggested has only a capacity for marginal wilderness use because they are adjacent to or involved in heavy usage.
5. What happens on adjacent lands shouldn't affect wilderness designation in Lake Mead NRA.
6. Wilderness should be approached from the viewpoint of minimum destruction.
7. More lead time for meetings, 45+ days.

LAKE MEAD NATIONAL RECREATION AREA WORKSHOPS
February 1977

ORGANIZATION MEMBERSHIP OR REPRESENTATION

Arizona Game and Fish Department
Arizona Mountaineering Club
Arizonans for Safe Energy
Arizona Office of Economic Planning & Development
Arizona Outdoor Recreation Coordinating Commission
Arizona Parks and Recreation Association
Arizona State University
Arizona Wilderness Study Committee (2 participants)
AWWW Inc.
Bureau of Land Management
Bureau of Reclamation
Friends of the Earth (3 participants)
Groups for Wilderness
Mohave County Parks Department
New Mexico Wilderness Study Committee (2 participants)
Sierra Club (4 participants)
Southern Arizona Hiking Club
Tempe Bar Home Owners Association (2 participants)
U.S. Army Corps of Engineers
U.S. Coast Guard
Wilderness Society (2 participants)

2. Coordination with Other Agencies

a. Bureau of Reclamation

September 22, 1975

The Superintendent and members of his staff held a meeting with Bureau of Reclamation staff persons to discuss proposed development sites for pumped-back storage, and Hoover Dam modifications.

September 8, 1976

Attended by Wilderness Coordinator, Denver Service Center (DSC), persons of Lake Mead staff and Lower Colorado Regional Office staff at Reclamation offices in Boulder City. Issues discussed included Hoover Dam expansion, pumped-back-storage sites, transmission lines, Southern Nevada Water Project, 300-foot setbacks from high-water line of Lakes Mohave and Mead, future augmentation, alternate Highway 93 Colorado River crossing, and the Kingman Water Project. These issues were discussed in terms of the 1974 Preliminary Lake Mead Wilderness Recommendation.

February 7 & 8, 1977

Field examinations were made by air of proposed Reclamation pumped-back-storage sites by DSC representatives and Max Haegle of the Bureau of Reclamation. In addition, an on-the-ground examination of the Pinto Valley pumped-storage site was conducted with Ben Radicki of the Bureau accompanying the participants mentioned above.

March 7-10, 1977

An environmental coordinator from the Boulder City Office participated in the development of the preliminary wilderness proposal and development of the outline for the draft environmental statement. The work session was held at Denver, Colorado in the DSC and attended by Lake Mead National Recreation Area staff members and by DSC planning team members. Public input was analyzed from the pre-planning workshops and considered while developing the preliminary wilderness proposal.

b. Bureau of Land Management

January 19, 1977

Members of the DSC team were in St. George, Utah to gather basic data and to inform the Bureau's Arizona Strip staff members of the wilderness workshops to be held in St. George during February.

February 18, 1977

A recreation specialist with the Bureau was briefed by members of the wilderness planning team in St. George, Utah on the NPS approach to designating wilderness. The suggestion was made that the NPS should contact individual ranchers concerning wilderness

designation of any lands within the Lake Mead National Recreation Area. Plans were made for a field trip in March to accomplish this objective. Wilderness study areas as required by the new BLM Organic Act were generally identified.

March 2, 1977

The Bureau provided the planning team with a map showing all known tanks, corrals, improved water pockets, and other improvements necessary to sustain grazing. This information was used by the planning team on subsequent trips to the Shivwits Plateau and Andrus, Parashant, and Whitmore Canyons.

April 1977

Contacts were made by the park staff with the Nevada BLM offices to verify locations of wilderness study areas required by their Organic Act.

c. Southern Nevada Water System

February 24, 1978

The Manager and the maintenance superintendent of the Las Vegas Valley Water District, Southern Nevada Water System, were contacted concerning access and maintenance requirements to the River Mountains (Unit 6) by the planning team captain and members of the park staff.

B. COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT

Comments will be requested from the following:

- Advisory Council on Historic Preservation
- Department of Agriculture
 - Forest Service
 - Soil Conservation Service
- Department of Defense
 - Army Corps of Engineers
- Department of Energy
- Department of the Interior
 - Bureau of Indian Affairs
 - Bureau of Land Management
 - Bureau of Mines
 - Bureau of Outdoor Recreation
 - Bureau of Reclamation
 - Fish and Wildlife Service
 - Geological Survey
- Department of Transportation
 - Coast Guard
 - Federal Aviation Administration

**Environmental Protection Agency
Federal Power Commission**

**Arizona State Clearinghouse
Arizona State Historic Preservation Officer
Nevada State Clearinghouse
Nevada State Historic Preservation Officer
Metropolitan Clearinghouse, Las Vegas
Utah State Historic Preservation Officer**

**Hualapai: Tribal Council
Southern Nevada Water System**

Informational copies will be sent to the following:

**Coconino County, Planning Commission
Colorado River Commission
Mohave County Parks Department
Mohave County Planning and Zoning Commission**

**City Manager, Kingman, Arizona
Mayor, Boulder City, Nevada
Mayor, Henderson, Nevada
Mayor, Las Vegas, Nevada
Mayor, North Las Vegas, Nevada
Mayor, St. George, Utah**

**Advisory Commission of Arizona Environment
Aircraft Owners and Pilots Association
Arizona Conservation Council
Arizona Desert Bighorn Sheep Society, Inc.
Arizona Friends of the Earth
Arizona-Nevada Academy of Science
Arizona Parks and Recreation Association
Arizona Wilderness Study Committee
Arizona Wildlife Federation
Arizona Wildlife Society
Arizonans for Quality Environment
California Four-Wheel-Drive Association
Colorado Plateau Environmental Advisory Board
Colorado River Wildlife Council
Conservation Foundation
Desert Protection Council
Federation of Western Outdoor Clubs
Lahontan Audubon Society
Museum of Northern Arizona
National Audubon Society
National Parks and Conservation Association
National Parks Foundation**

**National Wildlife Federation
Nature Conservancy
Nevada Open Space Council
Sierra Club, Southwest Office
Southern Arizona Hiking Club
Southern Nevada Resources Action Council
Tempe Bar Home Owners Association
Wilderness Society**

A P P E N D I X E S

- A. U.S. BUREAU OF RECLAMATION STUDY, JANUARY 1977**
- B. THE WILDERNESS ACT OF 1964**
- C. WILDERNESS PRESERVATION AND MANAGEMENT
POLICIES OF THE NATIONAL PARK SERVICE**
- D. FIELD SOLICITOR'S MEMORANDUM. - WILDERNESS
DESIGNATION ON RECLAMATION WITHDRAWALS**
- E. RESULTS OF THE PUBLIC HEARINGS AND WRITTEN
RESPONSES TO THE PRELIMINARY WILDERNESS STUDY,
NOVEMBER 1973**
- F. WILDERNESS TEAM PERSONNEL**

APPENDIX A

RECLAMATION STUDY, JANUARY 1977

On September 30, 1974 the Assistant Commissioner of the Bureau of Reclamation directed the Regional Director, Boulder City, Nevada, to firm up investigation potentials in the area and to work with the National Park Service in the development of future wilderness proposals.

The report was conducted in compliance with those directions and lists Reclamation energy potentials located within the Lake Mead National Recreation Area. Because of the change in land status due to the enlargement of the Grand Canyon National Park, the report did not specifically address itself to Reclamation potentials on lands which were formerly within the Lake Mead National Recreation Area.

Lake Mead was formed by the impoundment of water behind Hoover Dam, which was authorized by the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057) for the purpose of controlling floods, improving navigation and regulating the flow of the Colorado River, providing for storage and delivery of stored waters for reclamation of public lands, and for the generation of electrical energy. In recognition of the national significance of the recreation area which developed around Lake Mead, Congress passed the Lake Mead National Recreation Area Act of October 8, 1936 (78 Stat. 1039), describing the functions and activities to be exercised by the Secretary of the Interior in his administration of the area.

In addition to those mentioned above, other potential uses of the land for energy development have been recognized for a number of years. For

this reason, the language of the legislation of October **1964** establishing Lake Mead National Recreation Area states that the establishment of boundaries of the Lake Mead National Recreation Area

. . . shall not affect adversely any valid rights in the area, nor shall it affect the validity of withdrawals heretofore made for reclamation or power purposes. All lands in the recreation area which have been withdrawn or acquired by the United States for reclamation purposes shall remain subject to the primary use thereof for reclamation and power purposes so long as they are withdrawn or needed for such purposes.

The Bureau of Reclamation supported the designation of wilderness units in the Lake Mead National Recreation Area in **1974** and does not oppose wilderness areas at locations where Reclamation has no foreseeable long-range possibilities to use the land.

The multiuse concept of this area was designed originally for flood control, water storage, electrical energy, and recreation.

In future years, it is possible that Reclamation will require areas adjacent to Lake Mead and Lake Mohave in connection with proposals such as pumped-storage reservoirs or projects wherein water is imported to the Colorado River from another region.

Summary of Investigations

Pumped Storage

Pumped storage appears to have one of the most promising potentials for power development in Lake Mead National Recreation Area. In such an operation, off-peak electrical energy would be used to lift water into a storage reservoir for use during on-peak load periods. The criteria for pumped-storage sites can be generalized as:

1. Must be close to a lake or a constant water supply
2. Must have a suitable geological structure for impounding water
3. Provide the overall requirements for an integrated system.

The number of potential pumped-storage sites is relatively small within Lake Mead National Recreation Area, and it would appear, from initial examinations, that most sites could be used without appreciably reducing the overall wilderness area objectives. Six such potential energy sites have been located and are identified on the preliminary wilderness plan map. They are: Pinto Valley on Lake Mead, and Indian Rapids, Fenlon Bend, Mohave, Fire Mountain, and Newberry Mountains, all on Lake Mohave.

Hoover Powerplant Modifications

Pursuant to Public Law **94-156** (**89** Stat. 825), the Secretary of the Interior has been authorized to engage in feasibility investigations of the Boulder Canyon Project Modifications. A preliminary report, published in April **1973**, indicated that it was technically and economically feasible to increase the generating capacity at Hoover Powerplant, but

that the extent of development would be limited by availability of water, agreement among affected parties, and the need to preserve established scenic and recreational qualities.

Transmission Corridors

In conjunction with these potential hydroelectric resources, a review of transmission requirements was undertaken to determine the need for additional transmission line rights-of-way. With the exception of the Pinto Valley pumped-storage site, it appears that most transmission requirements could be satisfied by construction of new transmission lines in corridors adjacent to existing high-voltage transmission lines. The Pinto Valley site would require the establishment of a new corridor across the recreation area.

This concept is in keeping with a study published by the Bureau of Land Management in July **1975** entitled "The Need for a National System of Transportation and Utility Corridors."

This study revealed that to minimize ecological and environmental impacts and the proliferation of rights-of-way on Federal land, as well as developing and distributing much-needed new energy sources, planning corridors appeared to be the most optimum action to take despite some obvious shortcomings. The report recommended that Federal agencies be directed to identify and reserve across Federal lands a national system of planning corridors, which are suitable for, and shall remain open to, future routing of transportation and utility rights-of-way.

The environmental criteria adhered to by the Department of the Interior and the Department of Agriculture require that properly sited established rights-of-way should be used where warranted for the location of additions to existing transmission facilities to minimize conflict with present and planned use of the land.

The existing transmission lines crossing the Lake Mead National Recreation Area and the potential corridor locations for the Pinto Valley site are indicated on the preliminary wilderness plan map.

300-Foot Setback from Lakes Mead and Mohave

Pursuant to an inter-Bureau agreement of October **13, 1936**, and clarified by Public Law **88-639** of October **8, 1964**, which defined the location of the Lake Mead National Recreation Area boundary and the responsibilities for its administration, the National Park Service and the Bureau of Reclamation have enjoyed unified land jurisdiction and shared joint administration over the Lake Mead National Recreation Area. Since construction of Hoover Dam, and enactment of P.L. 88-630, Reclamation has lifted its withdrawal in Arizona and Nevada on approximately 684,000 acres within the recreation area. Additional revocations are anticipated when Reclamation can accurately forecast its land requirements for use in connection with anticipated actions such as the importation of water, pumped-storage proposals and other reclamation activities. The revocations made since October **8, 1964**, were made on the basis of language in the Act which insures that land in the recreation area will remain subject to the primary uses for reclamation and power purposes as long as they are withdrawn or needed for such purposes.

The 1971 orders revoked reclamation withdrawals from the recreation area boundary to a point measured 300 feet horizontally back from the high-water line of Lakes Mead and Mohave. Wilderness designation along the shoreline of Lakes Mead and Mohave is proposed to coincide with the 300-foot horizontal setback from the high-water line. This strip of land along the lakeshores is used by the public for intensive recreation, and by the Bureau of Reclamation for reservoir maintenance activities and for water measurements, water quality evaluations, evaporation studies, control of natural slide areas, etc.

Southern Nevada Water Project - River Mountains Tunnel

The Southern Nevada Water Project delivers municipal and industrial water from Lake Mead to one of the fastest growing areas of the country. The area served includes Las Vegas, North Las Vegas, Henderson, Boulder City, and Nellis Air Force Base. The initial stage of the Project diverts from Lake Mead up to 132,000 acre-feet annually, which is part of Nevada's allocated share of Colorado River water.

Project works consist of intake facilities at Lake Mead, eight pumping plants, a 3.8-mile-long, 10-foot-diameter tunnel through River Mountains, and approximately 35 miles of pipeline.

Access must be maintained to all project facilities for operation and maintenance.

Future Additional Flows to the Colorado River

The Pacific Southwest Water Plan Report of January 1964 contains an estimate that water requirements in the Pacific Southwest will be about

20,000,000 acre-feet by the year 2000. This was based on a policy of no expansion in the irrigation economy.

Congress declared in the Colorado River Basin Project Act, Public Law 90-537, of September 1968, that meeting requirements of the Mexican Water Treaty from the Colorado River constitutes a national obligation which shall be the first priority of any increased river flow modification project. Congress also provided that for a period of ten years from the enactment of Public Law 90-537, the Secretary shall not undertake reconnaissance studies of any plan for the importation of water into the Colorado River Basin from other natural river drainage basins lying outside the seven Colorado River Basin states.

No studies of importation of water from outside the Colorado River Basin have been made since the publication of the PSWP report due to the restrictions placed on such studies by Congress. The 10-year restriction will terminate in October 1978, and it is assumed that appraisal studies could be initiated some time after that date. If additional flows are necessary to increase water in the Colorado River, Lake Mead would be the logical terminal reservoir.

Colorado River Highway Crossings

The crest of Hoover Dam is presently used as a link between Arizona and southern Nevada and is designated as U.S. Highway 93. Because of the increasing volume of both tourist and commercial traffic, compounded by the attraction that the dam presents, serious problems have developed at and in the vicinity of the dam. The problems relate both to the safety

of tourists and the dam and appurtenant structures. Because of this, an alternate route for through traffic is under consideration and should be excluded from the proposed wilderness area.

The alternate route, designated as a "Bridge Crossing One Mile Below Hoover Dam," would have four miles of access road in Nevada, and one mile of access road in Arizona. Adequate areas for interchanges and visitors' facilities would also be excluded. In addition, provisions may be made during the design of the bridge to provide for future communications, power, oil, gas, and water lines. Corridors for these future utilities as they diverge to and from the bridge must also be provided. Most of the route would be located within the area designated as the Reclamation Administrative Zone

Bureau of Reclamation Recommendations:

The Bureau recommended that the following areas be designated as POTENTIAL WILDERNESS ADDITIONS until such time as these areas can be eliminated from further consideration for reclamation developments.

Newberry Mountains - Contains potential pumped-storage sites.

Fire Mountain - Contains potential pumped-storage site.

Malpais Mesa and Fenlon Bend - Contains potential pumped-storage sites.

Roaring Rapids - Lands adjacent to Lake Mohave may be required in conjunction with Hoover Powerplant modifications.

Indian Rapids - Contains potential pumped-storage site. Lands adjacent to Lake Mohave may be required in conjunction with Hoover Powerplant modifications.

Pinto Valley - Contains potential pumped-storage site and associated transmission corridors.

Hoover Dam (Indian Rapids & Ringbolt Rapids) - Lands adjacent to Lake Mohave may be required in conjunction with possible Hoover Powerplant modifications.

Five of the above mentioned pumped-storage sites use Lake Mohave as a Lower Reservoir. The limited storage capability of Lake Mohave would preclude the development of all five sites even if all sites were tech-

nically and engineeringly feasible. Thus, until the most promising one or two sites can be identified, all potential pumped-storage sites should be designated as POTENTIAL WILDERNESS ADDITIONS.

All transmission corridors should be excluded from wilderness. These include the following:

- Four Corners-Eldorado 500-KV 1 line (1660' width).
- Mead-Liberty 345-KV line (1660' width),
- Pinto Valley pumped-storage site corridors (indefinite location) crossing through Arch Mountain unit and Petroglyph Wash unit.
- Mead-Davis 230-KV line (330' width).

Provision for corridors adjacent to existing transmission lines will provide for transmission requirements for the above mentioned power potentials, as well as other projects outside the Lake Mead National Recreation Area, which may be needed to meet projected loads in the Southwest area.

The Bureau of Reclamation believes that the following lands should be excluded from the wilderness proposal :

River Mountains Tunnel Corridor - Several features of the Southern Nevada Water Project (SNWP) are in the River Mountains to which access must be maintained, including the River Mountains Tunnel, SNWP telemetry systems, and associated utility lines and access

road. In addition, stage II construction of SNWP is now underway. The Bureau of Reclamation requires the following minimum corridor in Section 6, T. 22 S., R. 64 E., MDB&M to meet its responsibility concerning SNWP as it is now designed. The corridor would have a southern boundary lying 660 feet south of the present River Mountain Tunnel alignment. The northern boundary would begin at the mid-point of the east section line, proceed westward along the mid-section line until it is within 300 feet of the access road, and then maintain this distance from the road until the recreation area boundary is reached.

Hoover Dam - All lands within the Hoover Dam Reservation Boundary should be excluded from any wilderness or potential wilderness area.

AI 1 Areas - A 300-foot horizontal setback from high water elevation of 1,229 feet for Lake Mead, and 655 feet for Lake Mohave, should be omitted from proposed wilderness to provide for Reclamation activities along the shoreline.

A special provision is recommended in the legislation designating wilderness which identifies Reclamation's potential needs in the River Mountains, for construction and maintenance in the event of damage to the existing tunnel, for enlargement of the existing tunnel, or for an additional tunnel in the event any increased Colorado River flow modification projects are undertaken by Federal or State agencies. Either of these events could require additional land for construction or for spoil deposits in the same general area as the existing tunnel.

Future Reclamation Studies

Additional studies will be required by the Bureau of Reclamation before POTENTIAL WILDERNESS ADDITION areas can be designated as WILDERNESS AREAS.

Appraisal studies of the pumped-storage sites on Lakes Mead and Mohave will be required to determine which sites, if any, are suitable for development. The Bureau of Reclamation is currently involved in a study to identify and appraise ways to expand water-related energy production in the Western United States. This 15-month, Bureau-wide Western Energy Expansion Study will range from investigating potential new sources of hydroelectric power to considering possible integration of solar energy with hydropower, and includes several of the sites discussed in this report. This study will place in priority those which merit more detailed investigation and possible development.

The Bureau of Reclamation will pursue the possibility of conducting a peaking power study of the Lower Colorado Region. A similar study in the Upper Colorado Region, the Colorado River Basin, Power Peaking Capacity Feasibility Study was authorized by the Feasibility Studies Act of September 7, 1966 (Public Law 89-561, 80 Stat. 707), and is now underway. Although this study was limited to the Colorado River Basin in Arizona, Colorado, and Utah, and the eastern part of Bonneville Basin along the Wasatch Mountains in Utah, it would appear logical to engage in a similar study encompassing the Lower Colorado River Basin.

As mentioned earlier, Public Law 94-156 (89 Stat. 825), December 16, 1975, authorized the Secretary of the Interior to engage in feasibility investigations of Boulder Canyon Project Hoover Powerplant Modifications. These feasibility studies began in fiscal year 1977 (October 1976) and will extend for three years through fiscal year 1980. The purpose of these studies is to determine the extent to which the power peaking capability of Hoover Powerplant can be increased.

Also, in conjunction with the Boulder Canyon Project, the Bureau of Reclamation will continue to support a Colorado River Highway Crossing below Hoover Dam. Design standards have been tentatively agreed upon and the Bureau of Reclamation has provided feasibility designs and estimates to the Arizona and Nevada Highway Departments. Should major construction activities at Hoover Dam ensue as a result of the Hoover Powerplant Modifications feasibility studies, construction of a bypass will be almost mandatory, since existing traffic is at or near maximum capacity of the present roadway.

Timetable of studies is as follows:

Timetable of Studies

Boulder Canyon Project Modifications (Authorized)

Oct. 1, 1976	Initiate Modification Studies
Sep. 30, 1980	Complete Feasibility Studies

Pumped-Storage Studies (Scheduled)

FY- 1979	Initiate Studies
FY - 1982	Complete Studies
FY - 1983	Final Report to NPS

National Park Service Response

Bureau of Reclamation recommendations are applied as suggested for all wilderness units, with the exception of the maintenance access route over the River Mountains unit which the National Park Service believes should be considered for possible wilderness designation since it is used on an infrequent basis. The National Park Service recognizes the potential need for development within units classified as potential wilderness additions and strongly agrees with the Bureau that these areas should be reclassified as wilderness when they are no longer being considered for development as pumped-storage sites. The "Timetable of Studies," incorporated in the Reclamation Potentials Study, indicates that this information will not be available until fiscal year 1983. If funding allows, it is hoped that these studies could be completed before that date to permit designation of wilderness at the earliest opportunity. Discussions on each wilderness unit affected will follow in the section describing wilderness units.

APPENDIX B

WILDERNESS ACT

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Wilderness Act."

WILDERNESS SYSTEM ESTABLISHED—STATEMENT OF POLICY

SECTION 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area shall continue to be managed by the Department and agency having jurisdiction thereof immediately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

DEFINITION OF WILDERNESS

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

NATIONAL WILDERNESS PRESERVATION SYSTEM — EXTENT OF SYSTEM

SECTION 3. (a) All areas within the national forests classified at least 30 days before the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness," "wild," or "canoe" are hereby designated as wilderness areas. The Secretary of Agriculture shall —

(1) Within one year after the effective date of this Act, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: *Provided, however,* That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

Classification. (b) The Secretary of Agriculture shall, within ten years after the enactment of this Act, review, as to its suitability or non-suitability for preservation as wilderness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President.

Presidential recommendation to Congress. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other

reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act.

Congressional approval. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendations to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit; if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Notwithstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such area as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

Report to President. (c) Within ten years after the effective date of this Act the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within, the national wildlife refuges and game ranges, under his jurisdiction on the effective date of this Act and shall report to the President his recommendation as to the suitability or non-suitability of each such area or island for preservation as wilderness.

Presidential recommendation to Congress. The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act.

Congressional approval. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or other-

wise, be construed to lessen the present statutory authority of the Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

Suitability. (d) (1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness—

Publication in Federal Register. (A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

Hearings. (B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the area: *Provided*, That if the lands involved are located in more than one State, at least one hearing shall be held in each State in which a portion of the land lies;

(C) at least thirty days before the date of a hearing advise the Governor of each State and the governing board of each county, or in Alaska the borough, in which the lands are located, and Federal departments and agencies concerned, and invite such officials and Federal agencies to submit their views on the proposed action at the hearing or by no later than thirty days following the date of the hearing.

(2) Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with respect to any area shall be included with any recommendations to the President and to Congress with respect to such area.

Proposed modification. (e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the appropriate Secretary after public notice of such proposal and public hearing or hearings as provided in subsection (d) of this section. The proposed modification or adjustment shall then be recommended with map and description thereof to the President. The President shall advise the United States Senate and the House of Representatives of his recommendations with respect to such modification or adjustment and such recommendations shall become effective only in the same manner as provided for in subsections (b) and (c) of this section.

USE OF WILDERNESS AREAS

SECTION 4. (a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of national park and wildlife refuge systems are established and administered and—

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use Sustained-Yield Act of June 12, 1960 (74 Stat. 215).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Seventy-first Congress, July 10, 1930; 46 Stat. 1020), the Thye-Blatnik Act (Public Law 733, Eightieth Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-Andresen Act (Public Law 607, Eighty-fourth Congress, June 22, 1956; 70 Stat. 326), as applying to the Superior National Forest or the regulations of the Secretary of Agriculture.

(3) Nothing in this Act shall modify the statutory authority under which units of the national park system are created. Further, the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system in accordance with the Act of August 25, 1916, the statutory authority under which the area was created, or any other Act of Congress which might pertain to or affect such area, including, but not limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 412 et seq.); section 3(2) of the Federal Power Act (16 U.S.C. 796 (2)); and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461 et seq.).

(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

PROHIBITION OF CERTAIN USES

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable, in addition, such measures may be taken as

such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture:

Transfers, restriction. Provided, however, That the United States shall not transfer to a State or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress and egress to such surrounded areas by means which have been or are being customarily enjoyed with respect to other such areas similarly situated.

Acquisition. (c) Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of any area designated by this Act as wilderness if (1) the owner concurs in such acquisition or (2) the acquisition is specifically authorized by Congress.

GIFTS, REQUESTS, AND CONTRIBUTIONS

SECTION. 6. (a) The Secretary of Agriculture may accept gifts or bequests of land within wilderness areas designated by this Act for preservation as wilderness. The Secretary of Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated by this Act for preservation as wilderness if he has given sixty days advance notice thereof to the President of the Senate and the Speaker of the House of Representatives. Land accepted by the Secretary of Agriculture under this section shall become part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purposes of this Act.

ANNUAL REPORTS

SECTION 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list and descriptions of the areas in the system, regulations in effect, and other pertinent information, together with any recommendations they may care to make.

Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may be prescribed by the Secretary of Agriculture for the protection of the wilderness character of the land consistent with the use of the land for the purposes for which they are leased, permitted, or licensed. Subject to valid rights then existing, effective January 1, 1984, the minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and all amendments thereto.

Water resources. (4) Within wilderness areas in the national forests designated by this Act, (1) the President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial; and (2) the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance with regulations established by the Secretary of Agriculture in accordance with the general purpose of maintaining, without unnecessary restrictions on other uses, including that of timber, the primitive character of the area, particularly in the vicinity of lakes, streams, and portages: *Provided*, That nothing in this Act shall preclude the continuance within the area of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.

(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the national forests.

STATE AND PRIVATE LANDS WITHIN WILDERNESS AREAS

SECTION 5. (a) In any case where State-owned or privately owned land is completely surrounded by national forest lands within areas designated by this Act as wilderness, such State or private owner shall be given

may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.

Mineral leases, claims, etc. (3) Notwithstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the same extent as applicable prior to the effective date of this Act, extend to those national forest lands designated by this Act as "wilderness areas"; subject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery work, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; anti hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction, removal, and beneficiation of the mineral deposits, if the timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act: *Provided*, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after the effective date of this Act within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection.

Approved September 3, 1964.

LEGISLATIVE HISTORY:

HOUSE REPORTS:

No. 1538 accompanying H. R. 9070 (Committee on Interior & Insular Affairs) and No. 1829 (Committee of Conference).

SENATE REPORT:

No. 109 (Committee on Interior & Insular Affairs).

CONGRESSIONAL RECORD:

Vol. 109 (1963): April 4, 8, considered in Senate.

April 9, considered and passed Senate.

Vol. 110 (1964): July 28, considered in House.

July 30, considered and passed House, amended, in lieu of H. R. 9070.

August 20. House and Senate agreed to conference report.

APPENDIX C
WILDERNESS PRESERVATION
AND MANAGEMENT POLICY

THE NATIONAL PARK SERVICE WILL PRESERVE AN ENDURING RESOURCE OF WILDERNESS IN THE NATIONAL PARK SYSTEM AS PART OF THE NATIONAL WILDERNESS PRESERVATION SYSTEM, TO BE MANAGED FOR THE USE AND ENJOYMENT OF WILDERNESS VALUES WITHOUT IMPAIRMENT OF THE WILDERNESS RESOURCE.

From the earliest beginnings of the National Park System, the concept of wilderness preservation has been an integral part of park management philosophy. In the ensuing century, the national park movement has been a focal point for an evolving wilderness philosophy within our country.,

In 1964 the efforts of the wilderness movement were capped by passage of the Wilderness Act (P. L. 88-577, 78 Stat. 890). The main thrust of the act was to establish a National Wilderness Preservation System and provide for the study of federal lands in the national forests, wildlife refuges, and the National Park System for inclusion in the system. Consistent with the Wilderness Act, no park area may be designated as wilderness except by an act of Congress.

The Wilderness Act specifies that designation of a park area as wilderness shall in no manner lower the standards evolved for the use and preservation of such park in accordance with the Act to Establish a National Park Service, August 25, 1916 (39 Stat. 535), and other applicable legislation.

Wilderness areas shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, including "outstanding opportunities for solitude or a primitive and unconfined type of recreation." Thus, the preservation of wilderness character and values is the prime administrative responsibility of the Park Service, and activities to achieve other legal purposes of areas designated as wilderness must be administered so as to preserve the wilderness character. The public purposes for which park wilderness shall be managed relate to recreational, scenic, scientific, educational, conservation, and historical uses.

The National Park Service has conducted wilderness studies in conformity with the Wilderness Act, and the Secretary of the Interior has submitted legislative recommendations to the President and the Congress for designation of park areas as

wilderness. The Park Service will continue wilderness studies on parks authorized since the passage of the Wilderness Act wherever required or desirable.

The policies contained in this chapter relate specifically to park wilderness or to park areas that have been studied and recommended for wilderness designation. Policies of general application to parks are contained in other chapters and are not repeated here. The Park Service's wilderness policies may vary from those of the Forest Service and the Fish and Wildlife Service, based on the differing missions of the three agencies. All, however, have as their goal the preservation of wilderness character,

The Park Service has traditionally used the term "backcountry" to refer to primitive, undeveloped portions of parks. This, however, is not a specific land classification, but refers to a general condition of land that may span several of the Park Service's land classifications-that are essentially undeveloped and natural in character. Where the term wilderness is used, it will apply only to congressionally designated wilderness or to areas being studied or proposed for wilderness designation. The park "backcountry" would include the designated¹ or proposed wilderness, but could also include other roadless lands which contain minor developments not appropriate in wilderness and provide for a number of different park purposes and activities.

WILDERNESS REVIEWS

The Park Service will continue to review areas that qualify for wilderness study, consistent with provisions of the Wilderness Act and subsequent legislation directing that wilderness studies be made. Wilderness studies shall be subject to compliance with the Procedures for the Protection of Historic and Cultural Properties promulgated by the Advisory Council on Historic Preservation.

Protection of Roadless Study Areas

Roadless study areas subject to review for wilderness designation will be protected from activities which would endanger or alter their natural, primitive character until administrative study or the legislative process determines their suitability for wilderness designation.

Nature of Wilderness Land

The act defines wilderness, in part, as undeveloped federal land retaining its primeval character and influence which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable."

In interpreting this section, the Park Service considers lands that have been logged, farmed, grazed, or otherwise utilized in ways not involving extensive development or alteration of the landscape as qualifying for consideration of inclusion in wilderness proposals. Where such uses have impaired wilderness qualities, management will be directed toward restoration of wilderness character.

Management Considerations

An area will not be excluded from a wilderness recommendation solely because established or proposed management practices require the use of tools, equipment, or structures if those practices are necessary for the health and safety of wilderness travelers or protection of the wilderness area.

Grazing and Stock Driveways

Lands will not be excluded from a wilderness recommendation solely because of prior rights or privileges, such as grazing and stock driveways, provided these operations do not involve the routine use of motorized or mechanical equipment and do not involve development and structures to such an extent that the human imprint is substantially noticeable.

Historic Features

Historic features which are primary attractions for park visitors are not included in wilderness. However, an area that attracts visitors primarily for the enjoyment of solitude and unconfined recreation in a primitive setting may also contain historic features and still be included in wilderness. Typical historic features which may be included are archeological sites, historic trails, travel routes, battle sites, and minor structures. Historic trails may serve and be maintained as part of the wilderness trail system. However, if the planned scope and standard of maintenance would result in the imprint of man's work being substantially noticeable, the trail or other feature should not be included in wilderness.

Potential Wilderness Additions

When nonqualifying lands are surrounded by or adjacent to an area proposed for wilderness designation, and such lands will within a determinable time qualify and be available federal land, a special provision should be included in the legislative proposal which would provide for the future designation of these lands as wilderness upon publication in the *Federal Register* of a notice by the Secretary of the Interior that all uses thereon prohibited by the Wilderness Act have ceased.

Mining or Prospecting

Any recommendation that lands presently subject to mineral exploration and development be designated wilderness will only be made subject to the mineral interests being eliminated.

Utility Lines

Lands containing aboveground utility lines are not included in recommended wilderness. Areas containing underground utility lines may be included if the area otherwise qualifies as wilderness and the maintenance of the utility line does not require the routine use of mechanized and motorized equipment. No new utility lines are to be installed, and existing utility lines may not be extended or enlarged.

WILDERNESS USE

Wilderness is recognized in the Wilderness Act as an area “where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.”

The visitor must accept wilderness largely on its own terms. Modern conveniences are not provided for the comfort of the visitor; and the risks of wilderness travel, of possible dangers from accidents, wildlife, and natural phenomena must be accepted as part of the wilderness experience.

For a majority of park visitors, park wilderness will be appreciated primarily from outside wilderness boundaries as part of the park scene, viewed from park roads and developments. To them, as well as to the visitor who hikes into the wilderness, protection of the wilderness character is essential to the quality of the park experience.

information on Wilderness Use

Information on wilderness and backcountry use will be available in each park having such resources, specifying

- the kinds of clothing and equipment necessary for such use
- special dangers of wilderness use and precautions to be observed by the user
- regulations regarding wilderness and backcountry use

Limitation of Wilderness Use

If necessary to preserve the wilderness character, the Park Service will limit or disperse use through a variety of means best suited to the particular wilderness concerned.

Overnight Use

The Park Service may designate campsites where the protection of resources dictates the need. Campsite facilities are to be the minimum necessary for the health and safety

of the wilderness traveler and for the protection of the resources. Facilities may include an identifying site marker, pit toilet, tent sites, and unobtrusive fire rings.

Day Use

In smaller wilderness areas where the use pattern is essentially day use, provision of campsites may not be necessary, or they may be provided outside of wilderness boundaries.

Commercial Services

Guide services for horseback trips, hiking, boat trips, and similar services designed to provide opportunities for the enjoyment of primitive and unconfined types of recreation or other wilderness purposes of the area are permissible under careful control by each park as to their nature, number, and extent. Structures or facilities in support of such commercial services are not permitted within wilderness.

Caches

The storage of boats or other equipment by the public is not permitted. All equipment brought in must be taken out at the end of each wilderness trip.

Research

The Park Service, recognizing the scientific value of wilderness areas as natural outdoor laboratories, permits those kinds of research and data gathering which require such areas for their accomplishment, and which will not adversely modify either the physical or biological resources and processes of the ecosystems, nor intrude upon or otherwise degrade the aesthetic values and recreational enjoyment of wilderness environments. All activities must be in accord with wilderness management policies.

Refuse Disposal

Refuse may not be disposed of within wilderness, except for the burning of combustible materials where campsites are permitted. The "carry out" concept will be implemented by each park containing wilderness.

Hydrometeorologic Devices

Hydrologic or hydrometeorologic devices are usually permanent or semi-permanent installations used to gather water and climatic data related to the management of resources outside of the wilderness. Such existing devices may be retained in wilderness. New or additional devices should not be placed in wilderness, except upon a finding by the Secretary of the Interior that essential information cannot be obtained from locations outside of wilderness and that the proposed device is the minimum tool to successfully and safely accomplish the objective. The installation, servicing, and

monitoring of these devices shall be accomplished by such means as will assure human safety and will result in the minimum permanent and temporary adverse impact upon the wilderness environment.

WILDERNESS MANAGEMENT

Use of the Minimum Tool or Equipment

In the management of wilderness resources and of wilderness use, the Park Service will use the minimum tool necessary to successfully, safely, and economically accomplish its management objectives. When establishing the minimum tool, economic factors should be considered the least important of the three criteria. The chosen tool or equipment should be the one that least degrades wilderness values temporarily or permanently. Accepted tools, equipment, structures, and practices may include but are not limited to: fire towers, patrol cabins, pit toilets, spraying equipment, hand tools, and fire-fighting equipment. The specifics of wilderness management for a given park will be included in the park's backcountry management plan.

A detailed discussion of the minimum tool *and the specific approval authority required* are provided in the backcountry/wilderness management guidelines. Specific approval is required for the nonemergency use of motorized or mechanical equipment, the installation of new facilities or the modification of existing facilities in wilderness.

Motorized or Mechanical Equipment

As a general rule, use of motorized equipment or mechanical transport by the public is not allowed. Boating with hand propelled craft is an acceptable use of wilderness. Language customarily used in the National Park Service's recommended wilderness legislation would make applicable to the National Park Service a special provision of the Wilderness Act pertaining to the use of aircraft and motorboats. Under this provision, where the use of aircraft and motorboats has already become established, the use may be permitted to continue subject to such restrictions as the Secretary of the Interior deems desirable. This does not mean that previously established motorboat and aircraft uses of an area must be allowed to continue upon the designation of that area as wilderness or that water areas must be excluded from wilderness recommendation where motorboats are involved. Any recommendation to allow established aircraft or motorboat use to continue in wilderness would be based upon a finding that the purpose, character, and manner of such use is suitable to the specific wilderness under consideration.

Administrative use of motorized equipment or mechanical transport, including motorboats and aircraft, is permitted only as follows:

- in emergency cases involving the health and safety of wilderness users or the protection of wilderness values
- as necessary to meet the minimum needs of management .to achieve the purpose of the area

MANAGEMENT FACILITIES

Wilderness is defined, in part, as undeveloped federal land retaining its primeval character and influence, without permanent improvements. Facilities are permitted only as necessary to meet the minimum requirements for the administration of the wilderness area.

Roads

Permanent roads are not permitted in wilderness. Where wilderness includes abandoned roads, their use by vehicles is not permitted and the road should be restored to a natural condition. Temporary vehicular access is permitted only to meet the minimum requirements of emergency situations.

Trails

Narrow, unpaved foot and horse trails are permissible. Trails intended for foot travel only will be maintained, generally, to a width sufficient for persons to walk single-file. Trails intended for combined foot and horse travel, or for horse travel only, will be maintained to a width sufficient for horses and their riders to travel single file. Trail bridges are permitted at stream crossings if the crossing, without a bridge, would be unsafe during the normal period of use.

Heliports, Helipads, Helispots, and Airstrips

Heliports, helipads, and airstrips are not permissible. Natural openings may be utilized as helispots. No site marking or improvements of any type will be permitted, except in conjunction with specific emergencies, after which the area will be restored.

Communications Facilities

Radio facilities are permitted where necessary for management of the wilderness area.

Fire Management

Action will be taken to control wildfires in such a way as to protect natural and cultural features and to minimize the lasting impacts of the control action and the fire itself.

Fire Lookouts

Fire lookouts for wilderness protection are permitted where there is no adequate alternative method of fire detection.

Ranger Stations, Patrol Cabins, and Storage Structures

These structures are permitted only to the minimum extent necessary for wilderness management.

Fences and Hitching Racks

Fences and hitching racks are permitted only where essential for protection of the resource.

Chalets and Concessioner Camps

These facilities are not permissible.

Signs and Markers

Signs and markers may be provided only where they are necessary for visitor safety, management, or resource protection.

Tables

Picnic tables are not permissible.

Toilets

Toilet facilities are limited to locations where there are health and sanitation problems or danger of serious resource damage, and where reducing or dispersing visitor use is not practical or realistic.

PLAQUES, MEMORIALS, AND BURIAL PLOTS

Existing commemorative features and burial plots may be retained. No future additions may be made, unless permitted by existing reservations.



APPENDIX D

IN REPLY REFER TO

UNITED STATES
DEPARTMENT OF THE INTERIOR

OFFICE OF THE SOLICITOR
SAN FRANCISCO FIELD OFFICE
450 GOLDEN GATE AVENUE, BOX 36064
SAN FRANCISCO, CALIFORNIA 94 102

Your Ref:
L1425(WR)OL
LAME General

October 11, 1977

Memorandum

To: Regional Director, Western Region,
National Park Service

From: Field Solicitor, San Francisco

Subject: Wilderness Designation on Reclamation
Withdrawals, Lake Mead

As requested, we have reviewed the question of listing lands for wilderness designation which are subject to existing reclamation withdrawals at Lake Mead. The lands in question were withdrawn for reclamation purposes prior to formal establishment of the National Recreation Area on October 8, 1964 (16 U.S.C. § 490n).

In the Act establishing the Lake Mead NRA, it is provided that,

"[E]stablishment or revision of the boundaries of the said national recreation area shall not affect the validity of withdrawals heretofore made for reclamation or power purposes. All lands in the recreation area which have been withdrawn or acquired by the United States for reclamation purposes shall remain subject to the primary use thereof for reclamation and power purposes so long as they are withdrawn or needed for such purposes" (Public Law 88-639, § 2; 16 U.S.C. § 460n-1.)

In the legislative history of the Lake Mead establishment Act, one finds a statement in reference to the Lake Mead withdrawals that, "in that part of the area which was withdrawn for reclamation project purposes, this shall continue to be the primary use"(1964 U.S. Code Cong. Admin. News 3919).

On September 3, 1964, one month prior to passage of the Lake Mead NF 's establishment Act, the National Wilderness Preservation System Act was passed (Public Law 88-577, 78 Stat. 890,).

In the Wilderness Act, it is provided that wilderness areas established under the Act are to be administered in such a manner that they are unimpaired for use and enjoyment as wilderness (16 U.S.C. § 1131(a)). "Wilderness" as used in the Act is defined to refer to an area "retaining its primeval character . . . with the imprint of man's work substantially unnoticeable" (16 U.S.C. § 1131(c)). From this it is apparent that a withdrawal for primarily reclamation purposes could conflict with wilderness area designation and withdrawal.

The Wilderness Act does contain a provision permitting reservoirs and related uses in wilderness areas, but this provision is limited to areas within the national forests (16 U.S.C. § 1133(d)(4)). It is inapplicable to Lake Mead.

Based upon the foregoing, the existing reclamation withdrawals will have to be revoked prior to inclusion of areas subject to them in the Lake Mead Wilderness. Revocation could be effected either prior to wilderness designation, or by the Act formally establishing the Lake Mead Wilderness.

If there are any further questions, please call.



Ralph G. Mihan
Field Solicitor

cc:
Superintendent, Lake Mead

APPENDIX E

RESULTS OF THE PUBLIC HEARING AND WRITTEN RESPONSES TO THE PRELIMINARY WILDERNESS STUDY, NOVEMBER 1973

Governor of Arizona

Governor Williams opposed the establishment of wilderness within Lake Mead National Recreation Area, favoring a multiple-use concept for the area.

Hualapai Indians

The Hualapai Indians opposed the designation of wilderness north of the Colorado River (now within Grand Canyon National Park) because this designation would preclude the construction of the Bridge Canyon Dam on the Colorado River.

Conservation Groups Proposal

The Nevada and Arizona conservation groups and The Wilderness Society urge the following:

Establishment of a 915,000-acre Lake Mead wilderness area, including: two additional units along Lake Mohave, consisting of 17,000 acres south of Unit 3, and 3,000 acres north of Unit 4; expansion of Units 5 and 6 to include the rim areas and the Funnel; and expansion of Unit 7 south to the Willow Beach road and north to Lone Palm Hot Spring.

Addition of three units in the Lake Mead area, including 7,500 acres in the River Mountains, 8,200 acres south of Unit 19, and 13,600 acres northeast of Pierce Ferry, as well as minor road closures and expansions in Units 8, 14, 18, and 19.

Expansion of Unit 20 south to the recreation area boundary and west to Grapevine Mesa and expansion of Unit 21 to include the entire recreation area east of the Grand Wash Cliffs and north of the river, except road corridors to Twin Springs Point, Kelly Point, the Copper Mountain Mine, and Whitmore Canyon.

Extension of the wilderness boundary of units adjoining the reservoirs to the high-water line.

Deletion of the unnecessary special provisions.

Inclusion in wilderness of the Colorado River upstream from Separation Canyon, upon completion of the Park Service phaseout of motorized watercraft.

Encouragement of the Hualapai Indians to preserve and protect the wilderness qualities of their portion of the Grand Canyon.

Those Opposing Wilderness

The Department of Commerce, the State of Arizona, and Mohave County opposed wilderness because they desire multiple use and exploitation of mineral resources. Some organizations and several individuals expressed similar views.

SUMMARY OF RESPONSES RECEIVED

<u>Recommendation</u>	<u>Public Agencies</u>	<u>Private Organizations</u>	<u>Letters and Oral Statements</u>	<u>Signitures on Petitions</u>	<u>Totals</u>
National Park Service proposal	0	3	14	50	67
Enlarge National Park Service proposal	0	43	354	0	397
Less wilderness	5	0	0	0	5
No wilderness	4	9	11	0	24
Wilderness; no specific recommendations	2	1	4	0	7
Acknowledgement received; no specific comment	2	1	1	0	4
Environmental- impact-statement response	1	0	0	0	1
TOTALS	14	57	384	50	505

**VIEWS OF OTHER GOVERNMENT AGENCIES ON THE PRELIMINARY
WILDERNESS PROPOSAL WERE RECEIVED FROM THE FOLLOWING:**

**U.S. Department of Agriculture
Forest Service**

**U .S. Department of Commerce
General Counsel for Legislation**

**U .S. Department of the Interior
Geological Survey
Bureau of Indian Affairs
Bureau of Land Management (EIS response; no position on
wilderness;
letter not printed)
Bureau of Mines
Bureau of Reclamation
Lower Colorado Regional Office**

U .S. Department of Transportation

**State of Arizona
Governor (oral statement by his representative)
State Land Department**

**State of Nevada
Governor (in addition, comments by natural resource agencies)
Department of Conservation and Natural Resources
Nevada Department of Fish and Game (oral statement)**

**Mohave County
County Manager (oral statement)**

Hualapai Tribal Council (oral statement)

APPENDIX F

WILDERNESS TEAM PERSONNEL

The following individuals contributed to the development of the Preliminary Wilderness Proposal for Lake Mead National Recreation Area and to the development of its draft environmental statement.

TERRY R. CARLSTROM
Team Captain - Wilderness Coordinator
Denver Service Center

JON F. HAMAN
Environmental Specialist - Geologist
Denver Service Center

JERRY WAGERS
Superintendent
Lake Mead National Recreation Area

BILL BURKE
Resource Specialist
Lake Mead National Recreation Area

JIM VANDERFORD
Landscape Architect
Lake Mead National Recreation Area

JIM HOWE
Wilderness Coordinator
Office of Legislative Support
NPS Washington, D.C.

MAX HAEGLEY
Environmental Specialist
Bureau of Reclamation
Boulder City, Nevada

Publication services were provided by the graphics staff of the Denver Service Center. NPS 1379

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The Department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.